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THE very voluminous and complete annual report just published by the Connecticut Insurance Commissioner, giving the assets and form of investment of the life insurance companies doing business in that state, supplies impressive evidence of the "indirect" railway stockholder and bondholder. The returns of 28 companies inside and outside the state give total assets amounting to the great sum of $2,990,291,000. Of that amount, $1,432,114,000 is invested in "stocks and bonds." Unfortunately, the proportion in railway stocks and bonds is not summarized, but a glance at the separate investments, as grouped but not added, shows that they form a very large part. As an illustration, one old and conservative Connecticut company has 65 investments in railway stocks and bonds as compared with but 17 investments in stocks and bonds of other corporations. How literally vital is his life insurance to the holder, and the security of the corporation investment which pledges its payment at death, goes with the statement. From other directions come similar sidelights. Thus, out of Harvard University's total investments of $19,060,268, there is $5,453,059 in steam railway bonds, $1,549,880 in street railway bonds and $1,927,338 in railway stocks—$8,930,277, or nearly one-half the total investment. Or, again, in a more specific and limited case, take recent returns of the Massachusetts savings banks, showing that out of three issues alone of the New York, New Haven & Hartford those banks hold $22,499,000, or about 28 per cent. We have had occasion heretofore to bring out the immensity and variety of this indirect and popular vested interest, which the rich and poor, but especially the poor, have in the equitable treatment and rational prosperity of the railways. But the new and expressive proof of it as it appears in the annual returns of the great corporations of a fiduciary and trust character can hardly be cited too often.

THE New York *Sun*, in commenting on the subway situation in New York City, says:

"The ridiculous clamor that has been raised against one of the corporations chiefly interested in the subject has not been allowed to influence the attitude of the city. The absurd suggestions of superheated thinkers that certain men and institutions should be 'punished' have not been allowed to obscure the main purpose of all the plans and negotiations. . . ."

Without in any way attempting to pass judgment on the merits of the various proposals for new subways in New York City, it is worth while pointing out that the attitude taken by the *Sun* is one also taken at times by railway managers. The refusal of the public to grant new powers to a corporation now under the same management which has in times past abused the powers heretofore granted to it by the public is not only right and just, but, like honesty, is the only business policy that will work out to advantage in the long run. A great deal of the clamor that is aroused against the protection of railway rights by the federal courts is in reality an appeal to the courts to rectify mistakes of previous legislatures. If a railway company has been granted certain franchises and privileges the courts will see that these rights are protected, and if a mistake has been made the public who granted the franchises should properly suffer. If, however, a certain institution or certain individuals in the management of a railway company have actually disregarded the rights of the public in the management of a property, we disagree with the *Sun* in its argument that it is a shortsighted policy of "paying back" to refuse to trust them again. It is entirely wholesome that a railway management or the group of men who control a railway corporation should have to bear in mind the fact that their present attitude and acts will be held for or against them when they come to the public for new grants.

E. E. MOTE, manager of the Pacific Car Demurrage Bureau, has issued his report for the month of May, the first in which the rate on cars loaded with intrastate shipments was $3 a day, and he recommends that this sum should be made the rate on interstate shipments, thus making the practice unifrom throughout the state on all freight. The records for the single month of May are hardly sufficient to warrant a safe conclusion as to the effect of the change from $6 a day to $3. The consignees seem to have got so much in the habit of unloading cars promptly that they continue this commendable course under a $3 rate just as under a $6 rate; moreover, Mr. Mote believes that the $6 rate resulted in the provision by many consignees of additional facilities. The report gives a comparison of the results of the whole 22 months of the $6 rate, as compared with the 22 months preceding the adoption of that rate. In the earlier period, which ended with June, 1909, California agencies reported 1,673,487 cars subject to the $1 rate. Of these, 7.12 per cent. were held in excess of the free time, incurring demurrage amounting to $363,688, an average of $3.05 a car. During the 22 months since June, 1909, when the $6 rate became effective, the number

of cars reported subject to the $6 rate was 1,852,477, of which 1.06 per cent. were held in excess of the free time, incurring demurrage averaging $10.63 a car. The cars subject to the $6 rate amounted to 81 per cent. of all cars. Of the cars subject to the $1 rate, 5.68 per cent. were held over time. Notwithstanding the fact that 37.49 per cent. more cars were reported during the later 22-months period than in the preceding 22-months, the demurrage fell off 23 per cent. Taking up the question of why the railways have not before now adopted the higher rate of demurrage for interstate shipments, so as to put intrastate and interstate freight on an equality, Mr. Mote calls attention to the likelihood that the Interstate Commerce Commission might think a $1 rate reasonable.

THE press agent of a railway ought to manage all of the publicity-promoting deliverances made by the company, except in cases where a managing officer sees fit to speak to the public himself. At least, this would seem to be a reasonable position to take. The press agent is, or should be, skilful in quickly putting a statement into a shape to satisfy the public, and the need to which we refer is made manifest every day by statements emanating from railway sources and printed in the newspapers, which are in such incomplete or even erroneous shape as to show that a competent press agent did *not* have a hand in them. The importance of the press agent is shown in the following item recently printed in a daily paper:

> A———, July 3.—First circulation of the report of the wreck at L. caused much excitement and great apprehension throughout this seashore resort. The down train that figured in the collision is the big train of the day. Rumors that first reached here were to the effect that there were sixteen deaths on that train. This spread through the city, frightening thousands of friends and relatives of persons expected on that train.
>
> Following the archaic custom, the petty employees of the X. Y. Z. R. R. increased, rather than allayed, the alarm by refusing to give any infcrmation. A great crowd was at the station when the train was due. Women and girls were weeping for their husbands and sweethearts, and there was a scramble for every scrap of news. With silly foolishness, the railway men persistently declared that they knew nothing, when all the time they knew there had been no deaths and scarcely any one hurt on that train [all the casualties being on the other train]. It was an hour or more before the newspapers arrived to furnish relief to the women who were in the jam at the station, and three hours more before the passengers on that train finally reached A———. . . .

This is from a yellow journal, and very likely is exaggerated; but there are occasions in plenty where such a statement is true in principle; where large numbers of passengers are detained, where friends of these passengers quickly hear a part of the news, and then are kept in suspense for hours before they can get the rest of it, or get erroneous statements corrected. And this case illustrates forcibly the need of care in giving negative as well as positive information, and of having an expert news composer always in touch with every superintendent's office. The very natural caution of a station agent who fears that he may tell too much is, of course, specially strong (and he feels himself fully justified), when he knows or believes that the news is not so bad as it has been supposed to be; and yet we see in this case how an excess of caution can cause much anxiety. The simple rule is to tell all the main facts about deaths and injuries, and about probable movements of trains; to tell it with signature, from a recognized headquarters and to impart the news to all of the principal stations interested. The principal stations having been thus authoritatively informed, the agents at those stations will be free to give the news to any smaller station or to any person interested. Shaping news so as to satisfy the public does not mean that all idle questions should be answered; but that statements should be so worded that the reader can see that the purveyor knows what he is talking about, is telling all that he knows (on the points dealt with), and may be depended on to send a second communication when the circumstances require one. Why should not every superintendent thus fully post all of his principal stations within half an hour after he hears of a serious train accident in his territory?

A LETTER BALLOT ON PER DIEM RULE 5.

GENERAL SECRETARY ALLEN of the American Railway Association has announced the result of the letter ballot on the elimination of Per Diem Rule 5. The vote was as follows: For elimination of Rule 5, 164 memberships, representing 1,375,071 cars; against, 111 memberships, representing 653,842 cars; not voting 77 memberships, representing 335,555 cars; vote necessary to make the proposed change, 177 memberships, representing 1,576,312 cars. While the majority of the memberships necessary to make the proposed change voted for it, the number of cars represented by those voting "Yes" fell over 200,000 short of the two-thirds required.

Per diem rule 5 is the one under which a switching line reclaims from the "carrier" line an arbitrary amount for each car handled in switching service as an offset to the per diem paid by the switching line to the car owner. Under this rule the amount of the reclaim is determined by the roads directly interested for each local territory, and is based—at least in theory—on the average number of days actually required by the switching road for the handling of cars. The rule has been objectionable to the larger roads ever since the adoption of the per diem code, and it is considered by them regrettable that under the conservative rules governing letter ballots in the American Railway Association, a change desired by a majority of the members, owning 68 per cent. of the cars represented by those voting, has been defeated.

The reclaim rule was inserted in the per diem rules agreement at the time of its adoption in 1902, as a temporary expedient to avoid injustice to the switching roads which, under the mileage system previously in effect had paid nothing for the use of foreign cars, and whose proportion of the freight or switching rate was based on this free use of equipment. While in theory the reclaim was intended only to offset the per diem, the allowance of an arbitrary amount instead of the actual per diem accruing was expected to put a premium on the prompt handling of cars. In practice the application of the rule has expedited the movement of cars through terminals, and to that extent it has been of benefit. But the roads gradually have come to disregard the principle that the amount reclaimed should be based on the actual time required to switch cars; and it is the belief of many well-informed transportation officers that there are now few points in the country where the number of days for which reclaim is allowed is not from 25 per cent. to 200 per cent. in excess of the number of days for which the switching line is required to pay per diem to the car owner.

In such cases the allowance of a reclaim is simply the granting by the road paying it of a concession to the switching line in addition to its proportion of the rate or the switching charge. In the case of a road owned by an industrial corporation, whether a large one or a small one in the twilight zone between a bona fide carrier and a "plant facility," the payment of a reclaim in excess of the per diem actually accruing verges on or actually becomes rebating. No doubt consideration of this phase of the question had something to do with the attempted elimination of Rule 5. The situation is complicated by the fact that many large roads that pay out considerable sums in reclaims, themselves do enough switching business to make them creditors in the net reclaim balance. Such roads naturally side with the strictly terminal roads in opposing either reduction in the number of days' reclaim allowed or the total elimination of the reclaim rule.

In addition to figuring in a great many cases decided by the Arbitration Committee, the reclaim matter has been the subject of a number of special investigations by committees of the American Railway Association. The most noteworthy have been those of the Chicago Terminal Transfer and the Long Island Railroad. The Chicago Terminal Transfer withdrew from the per diem agreement in August, 1906, because of a difference with the other Chicago roads as to the proper reclaim allowance to be made to it. The committee on car efficiency, of which Arthur

Hale is chairman, arbitrated this case with the result that an agreement satisfactory to all parties was arrived at, and the Chicago Terminal Transfer again signed the pier diem agreement. Early in 1907 the Long Island became dissatisfied with the reclaim being paid to it and applied to the General Managers' Association of New York for relief. At the request of that association, the car efficiency committee made a thorough investigation, as an outcome of which the reclaim on the Long Island was abandoned and a readjustment of the through rates was made which was satisfactory to all parties. At the time of this decision, it was thought that the precedent established would be followed elsewhere and that for the reclaim systems would be substituted a system of making switching roads suitable divisions of through rates; but, although this was over three years ago, little progress has been made along the line indicated. While the letter ballot just closed is the first important step toward the general correction of the situation created by the reclaim system, it will not be the last, if we may judge from the sentiment shown by the vote in favor of abolishing Rule 5.

RAILWAY AGREEMENTS AND COMEINATIONS.

ON another page in this issue is given an abstract of the report made recently by a committee appointed by the English board of trade "to consider and report . . . what changes, if any, are expedient in the law relating to agreements among railway companies; and what, if any, general provisions ought to be embodied for the purpose of safeguarding the various interests affected in future acts of Parliament authorizing railway amalgamations or working unions." This report, when its language and spirit are contrasted with the utterances of many public men in this country and the statutes of the states and the nation regarding agreements and consolidations of competing railways, illustrates how different is official and public sentiment concerning these matters in Europe from what it is in the United States. Our state and federal anti-trust laws prohibit any but the most limited concerted action by competing roads regarding rates or services. The decision of the federal circuit court in the Harriman Lines merger case may indicate that only unreasonable railway agreements and combinations violate the Sherman law. But in view of the decisions in the Trans-Missouri and Joint Traffic Association cases, the force of which as precedents in railway cases recent decisions of the federal courts cannot with any assurance be considered to have materially reduced, nobody can tell what traffic agreements or arrangements between competing lines would be held to violate that law. As to pooling, that is most explicitly prohibited by the Interstate Commerce act.

The Sherman law as it applies to railways and the anti-pooling provision of the Interstate Commerce act are regarded by most railway managers, and by practically all economists who have specialized on railway affairs, as having been, and as still being, pernicious in their effects. In many instances they have had their intended effect of fostering railway competition; and in every such case they have also had the effect of causing or aggravating unfair discrimination, which it is the main purpose of the Interstate Commerce act to suppress. In still more cases they have had the effect of hastening or solidifying consolidations of competing roads, and thereby defeating the purpose of the Sherman anti-trust law as it applies to railways.

And yet, in spite of these facts, which are familiar to every railway manager, every railway economist, and every intelligent shipper, public sentiment continues to regard laws to compel railway competition as one of the bulwarks of our economic welfare, and public men of the Bryan-La Follette-Cummins type continue successfully to oppose any amendment of these laws, which are pernicious when they are effective and are ineffective when they are not pernicious.

On the other hand, the English committee making the report which we abstract elsewhere frankly recognizes the fact that legislation to compel competition between railways is almost certain to be ineffective, and that if it is effective it is apt to do more harm than good. Its view is that when it is to the interest of railways to act in concert regarding rates and service they will be impelled by the irresistible force of economic law to do so; that when the law prohibits them from making formal combinations they will make informal combinations; and that "experience has shown that informal combinations of this kind, while likely to be of less advantage to the companies than more formal and complete unions, can destroy competition just as effectively, and, moreover, possess certain incidental disadvantages from the public point of view, from which a monopoly under a single control is free." One of these disadvantages from the public point of view is that while the informal combination can restrict competition almost as completely as a formal legal combination, it cannot perfect an organization which can so effectively reduce and keep down expenses. The unnecessary expense resulting is, as the English committee says, sure to be passed along to the public in one form or another. When it has been urged in the United States that competing railways should be permitted to enter into traffic agreements, it has been contended in some quarters that these agreements should be made subject, before becoming effective, to approval by the Interstate Commerce Commission. The British committee clearly saw and pointed out that the protection of the public requires not that the agreement or the arrangement entered into by the competing roads but that the results of it should be subject to public control. In other words, it is of no consequence to the public whether one road or a dozen roads make a rate so long as the law provides, as the law of the United States now does, that the rate, if unreasonable, may be reduced, or that a proposed advance in a rate, if unreasonable, may be prevented. "General legislation dealing with the consequences as such, independently of whether they occur as the result of agreements or not," as the British commission said, "afford a much more extensive protection than the regulation of agreements. It would" (in the United States already does) "protect the public in the case of understandings as well as agreements . . . There would be no inducement created by its adoption for the companies to effect their objects indirectly or secretly." Such an inducement is held out by existing laws in the United States.

It is greatly to be wished that the people and public men of the United States could be given a baptism of the sort of intelligence that is shown by this board of trade report. Some additional legislation is needed to empower the Interstate Commerce Commission to act equitably and beneficially in all cases regarding rates, whether made by one or a number of railways; it should be empowered to compel rates that are too low to be advanced and to prevent undue reductions in rates. The possession and exercise of this authority are essential to enable it to suppress and prevent many existing forms of unfair discrimination. Once it were given this authority, it would be able to exercise complete control over interstate rates, whether made by one road or a combination of roads. And after that there would remain no ground whatever for keeping in effect the present prohibitions of railway agreements, pools and combinations. The purpose of these prohibitions has been and is to keep competing railways from making the same rates. Was there ever a bigger piece of nonsense than laws, or attempts to enforce laws, having this object when other laws compel all rates to be made public—thereby rendering it impossible for different roads to make different rates—and also give the Interstate Commerce Commission the authority to fix rates, in the exercise of which it constantly makes the same rates for competing roads? Is there any more virtue in a rate made for all competing roads by the Interstate Commerce Commission than in the same rate when made for the same group of competing roads by the concerted action of their traffic managers?

The light of reason having at last been adopted by the Supreme Court to enable it to distinguish between combinations which do and do not violate the Sherman anti-trust law, there seems some ground for hope that we shall presently emerge from the stone

age of public sentiment regarding railway competition, and secure legislation amending the Sherman law and the anti-pooling provision of the Interstate Commerce law in a way that will accord with modern conditions and the public welfare.

THE RAILWAY EXECUTIVE OFFICERS AND THE SUPPLY MANUFACTURERS' EXHIBITIONS.

EACH year the Railway Supply Manufacturers' Association gives an exhibition of machinery and supplies in connection with the conventions of the Master Mechanics' and Master Car Builders' associations. These exhibitions have year by year grown in size and improved in character until now in their quality and magnitude they will easily compare with any exhibitions given for any similar purposes in the United States, or, for that matter, in the world. The displays are annually inspected by the mechanical officers who attend these conventions. But the mechanical officers are not the court of last resort in the matter of purchases for railways. The operating executive officers to a very large extent determine what shall be bought, how large purchases shall be and when they shall be made. The operating executives, therefore, have, or should have, a very direct and earnest interest in all the new devices that the supply manufacturers are putting on the market and in all the improvements they are making in devices already in use. And yet it is so unusual for a general manager or vice-president of a large road to visit one of these exhibitions that the coming of more than a very few of them would create a sensation of no mean proportions.

One of the last acts of the Master Car Builders' Association at its convention last month was to adopt a resolution, introduced by C. A. Seley of the Rock Island, inviting the executive committee of the American Railway Association to attend the M. C. B. convention next year, and also to consider the advisability of appointing a committee to attend the convention and report back to the American Railway Association. The *Railway Age Gazette* believes that the executive committee of the American Railway Association might, to the distinct advantage of the railways as a whole, accept this invitation. We believe it would be for the great good of the railways individually and as a whole, if not mere committees of the American Railway Association, but general managers and vice-presidents in charge of operation generally, accompanied by their purchasing agents and storekeepers, would make it a part of their annual duty to visit the mechanical conventions and the exhibitions in connection with them. It is, for some reasons, of special importance that they should annually see the exhibitions. They can learn what the conventions do by reading the reports of their proceedings; but they can get an adequate idea of what the exhibitions are, and derive from them the benefits they are capable of conferring, only by seeing them.

We present elsewhere an illustrated article about this year's exhibition, which is intended to give the executive officers some notion of what they are like. The printed page can, however, convey only a very unsatisfactory impression of them. As has already been said, they stand in quality and magnitude in the first rank of their kind in the world. They tend to stimulate competition among supply concerns in turning out new and improved devices; and the effect of the executive officers making a practice of visiting them would be to make them still better, and indirectly to increase the efficiency and economy of railway operation. For the important fact ought not to be overlooked that whatever does tend to stimulate the competition and the enterprise of the supply concerns does tend to increase in a very great degree the economy and efficiency of railway operation. These manufacturers turn out the equipment that is used in railway operation and the materials and supplies that are used in their maintenance; and to the superior ingenuity of their engineers and the superior organization of their plants and sales department are largely due to the superiority of the operating methods and plants of American railways. Frequently the improvements in materials and equipment introduced by them are due to the suggestions and demands of the railway managements; but as often they are due to the genius of the engineers and the enterprise of the managements of the supply manufacturers themselves. The visits of the executive officers to the exhibitions would not only stimulate the progress being made in innumerable lines by the manufacturers, but would be a great help to the railway men in introducing improvements. They could see here more new devices and improvements in old devices in a very few days than they could see elsewhere by visiting shops for an entire year; and the information they would carry away would be invaluable in passing on the requisitions of their subordinates ,or in stimulating the latter to the adoption of ever more progressive methods and machinery.

There has been more or less criticism by the executive officers in the past of the entertainment features in connection with the conventions. Many of them seem to have the impression that these features are allowed to subordinate more serious business. Some of these criticisms have in the past been justified. But this has been where they have related to what *individual* supply men have done for *individual* railway men. The relations between individual railway men and supply men probably are now on a higher moral plane than ever before; and what the supply men as a body have done for the entertainment of the railway men as a body has usually been obnoxious to no just stricture. The entertainment furnished by the supply association's committee regularly appointed for that purpose has seldom been more than was desirable to add a pleasing flavor to the serious business done; and in point of expense and magnitude has been a mere bagatelle compared with the exhibition of equipment and supplies.

It will be worth while for the executive officers to give very serious consideration to this subject; and it is confidently believed that if they do so the number who will visit the exhibitions in future will be substantial, whereas the number who have visited them in the past has been negligible.

THE CONNECTICUT UTILITIES LAW.

CONNECTICUT has been afflicted with a railway commission which—up to the time of the present new commission, as yet untested—was weak in personnel and of a distinctively political character. Partly as a result of its attitude, and partly as an outcome of the general anti-corporation movement, active agitation for a general public utilities commission began six years ago. In the next legislature, that of 1907, the plan was practically smothered in committee. But a threat of Governor Woodruff to call an extra session resulted in the appointment of a commission to hold public hearings, draw up a bill and present it at the session of 1909. The bill, a strong measure, was duly drawn. But it and substitute measures fell between the two legislative houses after a virulent contest involving some lobby scandals. After a contest almost as bitter as that of two years ago a public utilities bill has at last passed both houses by large majorities—a "minority" bill, so called, because it received only a minority report from the judiciary committee of the legislature which had the matter in charge.

The new measure, for a New England state, at least, is somewhat unique. The old railway commission is abolished, the new commission given greater power and province. Besides steam and street railways its jurisdiction extends to electric light, gas, water, telegraph, telephone, power and express companies. With such extension of functions it is somewhat singular to find the number of commissioners limited to three, though, to be sure, with the addition of a secretary. The breadth and variety of technical knowledge called for argue in favor of several specialists. Perhaps, however, the augmented sense of responsibility of the smaller commission may compensate. But other features of the make-up of the commission are clearer in merits. Terms

of office are raised from four to six years; salaries from $3,000 to $5,000; the commissioners are to be paid from the state treasury and not by the corporations affected, as heretofore; and the old political system is rebuked, and perhaps reformed, by a proviso that makes cause for removal "active participation in political campaigns by any commissioner." Finally the old restrictions of a commission composed of a civil engineer, a lawyer and a "practical business man" are dropped and the only limitations on appointments by the governor are residence in the state and non-connection officially with a public service corporation.

Other provisions of the measure are more dubious in virtues and certainly more obscure, as well as more interesting in their future working. Primary jurisdiction over rates is pretty sweeping, following complaint, but is limited by appeal to the courts in the matter of reasonableness. These provisos of the measure have been sharply attacked by its opponents as a violation of the state constitution and the principle of non-delegated legislative power; and they are certain to be brought to a judicial test. More novel is a section in the nature of the recall. On complaint of 100 voters in the state in the form of a petition alleging commission incompetency or misconduct, the attorney-general of Connecticut must start legal proceedings and the offender or offenders removed if cause for removal is found. In view of the wide range of the commission's powers, the liability to error, the certainty that fidelity to duty will give offense and the ease with which a petition can be obtained it does not look as though the place of a commissioner would be a bed of roses.

Accidents must be promptly reported and duly investigated by the commission. After the experience of the state in street railway stock watering, a severe capitalization act was to be looked for. It has come in the shape of a section compelling stock to be paid for at par and a penalty not exceeding $10,000 fine and not more than 5 years' imprisonment visits a corporation officer guilty of participation in an over valuation in connection with the issue of new securities. False returns are penalized with $5,000 fine and 5 years' imprisonment as a maximum, and the commission is given practically the power of a court in calling for persons and papers in all proceedings. The commission has all the powers of the old railway commission not definitely repealed or superseded by the new law. It can fix proportional rates of connecting lines when there is disagreement; has full right of entry for purposes of investigation; can compel proper equipment, and order repairs; can take the same jurisdiction over trustees and receivers as over the companies, subject only to the action of the appointing court; and, in the case of the non-transportation companies, has powers largely correlative with those over street railways and the steam lines. The opportunity given for individual initiative in such cases is uncommonly large.

Had the former commission been good in personnel and had even moderately high ideals of performance, no such statute as this new one would have been enacted. The state had already laws enough for her street railways and steam roads, which laws could have been amplified readily to fit her other public service corporations. But the state and her transportation companies alike defaulted in duty. They let the railway commission become an asylum of politicians. They did not rebuke the old commission when it not only did not criticize but masked stock watering of some $15,000,000 in a single street railway corporation. They accepted the old commission's paltry plea of "lack of power," although its power over the returns of the street railway companies was complete, to say nothing of the power of protest. As the personal character of the old commission was the particular cause of the change, so will the personal character of a new commission be a prime element in the success or the failure of the more positive and mandatory law.

Letters to the Editor.

COLLEGE MEN AND RAILWAY WORK.

June 26, 1911.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

In your editorial of June 23, on college men and railway work, you deal mostly with the transportation end. Perhaps I can give one or two reasons why the graduate does not choose or stick to railway engineering.

He begins as chainman, at about two-thirds what he would get in other engineering lines. He runs errands, trims and colors blueprints, and goes out on surveys to carry the instruments. He is often reminded that the first thing for him to do to become of any use is to forget all he learned at college, and he gets little chance to show whether or not he really can do anything.

In a few years he has overtaken some—not all—of the grammar school graduates who were wont to scoff at his superior education. He now stakes out important work, and makes million-dollar plans and estimates—for which he receives the salary his classmates got at the start in other lines. But he remains the absolute property of the railway. While his better paid classmate is getting an extra vacation, he is cancelling a theater party at 4:45 p. m. in order to leave that night to make a rush survey down the line. He works evenings and Sunday to finish a plan, so construction can begin at once, and six months later he spends another Sunday refinishing the same plan. He is sent out on a special investigation without explicit instructions, and when he is half done it is called off and he never hears further of it. He spends a week figuring carefully on a location problem, and then somebody higher up glances at it and casually orders a big change, and he has no chance to defend his solution.

Several of my classmates started with railways eight years ago. One took blueprints two months, and then went into water supply, where he has got a job worth while. Another, a howling railway enthusiast when he graduated, stayed two years, and is now manager of a large construction company. I was, and am, tensely interested in railroading. And so I stayed seven years. Then I got married, and could afford it no longer, having no other source of income. In my last place one received a black mark if he was one minute late, and if one was caught conversing with a neighbor he was asked if it was company business. He could usually beg off if overtime or outside trips clashed with important private plans, but he was warned not to make private plans—and they reserved the absolute right to wire him at 11 p. m. to take the midnight to X, to learn there next morning for what and for how long.

An official on that road told me the tendency was more and more to require technical graduates for the important engineering places. But they never allowed anything for potential energy in the chap just graduated. Even at the meagre chainman's salary, they preferred a file clerk or office boy with some knowledge of the offices and routine of the road. So the graduate naturally goes where he gets some credit for his greater possibilities.

1903.

A movement has been started in Brisbane, Australia, for connecting the railways running from South Brisbane with the main system on the northern side of the river. This will mean the extension of the rails from the South Brisbane station, the building up of a bridge across the river somewhere near the North Quay, and the carrying of the lines to the Roma street station. The work will be a costly one, but it will facilitate railway management, and be a great convenience to the traveling public. It will also strengthen the case of Queensland for building the link between Tweed Heads and Murwillumbah.

THE TOLL OF NEGLIGENCE ON RAILWAYS.*

BY J. S. TUSTIN,
Freight Claim Agent, Missouri Pacific.

The payment by railways of claims for loss and damage to freight has reached, according to a recent report, the sum of $30,000,000 in one year. Any rule or set of rules, however they may be drawn, for prorating or distributing losses between carriers connected in joint service, becomes relatively unimportant as compared with the study of causes—not so much to learn the causes as to determine what can be done to reduce this tremendous expense. The lines:

"Little drops of water, little grains of sand
Make the mighty ocean and the beauteous land,"

well illustrate the way in which the countless multitude of payments, most of which are relatively small, unite to form an aggregate that now flows like a torrent.

These causes that make these payments necessary may be roughly classified as follows:

First. Causes beyond the control of a common carrier, the liability being occasioned by the principle of law which makes it the insurer of the safe delivery of goods in transit. The tendency of law is to affix a greater degree of liability as the science of transportation advances. In the early history of railways, courts decided that a common carrier was not responsible for damage to live stock because of its extraordinary character; but with the construction of cars specially prepared for this traffic, and the spread of information respecting the characteristics of horses and cattle and their fitness for rail transportation, this primitive view disappeared, as it has departed in respect to nearly every commodity which is transported. A demonstration that a thing can be done affixes a duty to do it.

We are all familiar with the cases involving loss of goods where a railway has done everything that could be done; where property has reached destination, has been delivered on the premises of consignees, has been destroyed by fire originating within mills or warehouses of the owners, and the insurance doctrine of transportation has held the carrier liable. The fire in all likelihood was occasioned by negligence somewhere, but regardless of where it is, the carrier pays. In the current discussions of reasonable freight rates we do not hear or read of a separation whereby a portion is indicated as insurance to cover unavoidable loss and a portion for transportation.

Railways must keep their necks bared to the yoke. The rigor of common law liability is not abated when a government body establishes a rate; there is no relaxation of responsibility. In theory a railway must get property to destination whether it is possible to do so or not—save the infrequent cases of an act of God and a limited number of other exceptions, which affect an inappreciable fraction of traffic.

Second. Negligence and carelessness of railway employees. Among all groups of men are to be found those who are patient and those who are not; those who have a sense of proportion and those who lack it; some whose views are broad and constructive and others who are restricted by habit; and this is as true of railway men as it is of others. There is this fundamental difference, that where a railway man fails to exercise care in his business, lacks judgment and reasonable self restraint, or has no proper ideal of service, the result cuts the purse string of the treasury and a golden flow is diverted from track, equipment, employment, and a satisfactory public achievement. A man engaged in other pursuits may lack one or all of these qualities without appreciable general loss.

The portion of the $30,000,000 toll that is charged as the penalty of neglect is alarmingly heavy. What can be said about the disappearance of goods that fail to show up anywhere within the ken of legitimate knowledge or in lawful commerce? What is involved in the payment by one group of railways, comprising 38,067 miles, within a recent period of three months, for 16,542 entire packages which disappeared as if the earth had swallowed them? What became of these goods? Who got them to whom they did not belong? Is there a widespread purpose to take sinister advantage of opportunity? There is an uncomfortable suggestiveness in these losses. You will, I believe, sustain me in the statement that dry goods, shoes, clothing, edibles, and other valuable and convenient property that disappears is not the kind of freight that shows up in our sales of undelivered goods.

Third. From negligence and carelessness of shippers. When one of our governmental departments declared that the American merchant follows habits of "national shiftlessness" a phrase was used which applies in a substantial degree to many lines of activity. If a flimsy package is broken in transit and goods are lost, is the situation met by a railway paying for the property even if it is with the promptness of "cash over the counter?" How stands the consignee whose needs are not supplied and whose expectations are postponed? And how stands the railway whose resources are crippled?

The bias of self interest prompts some shippers to get their goods transported at a minimum cost, and from this cause we frequently have barrels that leak, boxes that break, sacks that burst—packages that will not stand the contact necessarily made with other goods and the inevitable impact of railway transportation. Enough has already been said to form the basis for a lengthy thesis on the toll of negligence. There is no way to compute the buildings that are destroyed, the number of men injured, the families that suffer and the money that is lost because of the people who are careless.

It is not my purpose to engage in a lengthy discussion of ethics but rather to emphasize that broad duty which the majority of people recognize, of eliminating carelessness and the transferring of its results as a heavy burden to the shoulders of others. It is in this view of the situation that I speak of remedial measures. Admitting the costly negligence of railway employees, there is a sense in which a class of shippers prompted perhaps by a fictitious economy, or by ignorance or indifference in one form or another, is our active co-partner.

Assuming, then, that there is a duty imposed upon us to separate the sheep from the goats and that this duty is based upon broad, moral, financial and economic grounds, the first thing to be determined is the facts—not one fact—but a body of them, big enough to cause the truth to be established. Then having determined the facts, consideration is to be given to the cure.

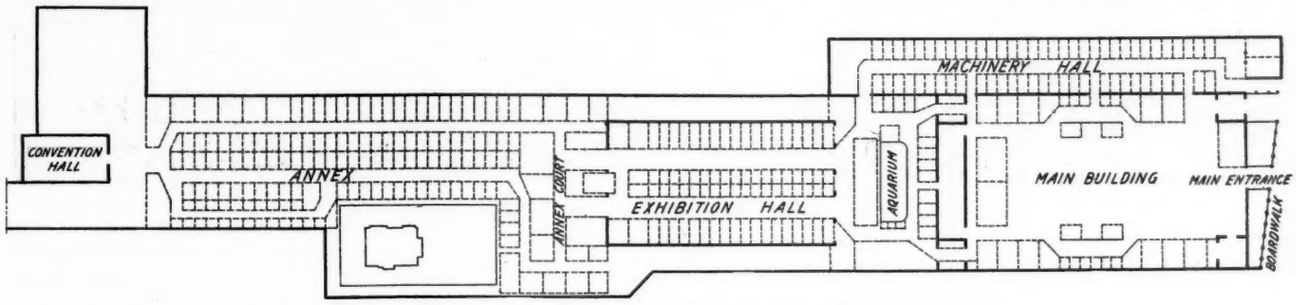
And here comes the important question: By whom are the facts to be gathered and who is the doctor to prescribe the remedy? Can a committee of men devoting a small part of their time to this great problem work out a solution? My opinion is that it is not to be reached in this way, but rather through the patient, persistent application of a body of men, perhaps five or six, who are equipped by experience, skill and temperament, who will agree to devote themselves exclusively to it.

*Abstract of an address at the meeting of the Freight Claim Association, St. Paul, Minn., June 21.

Three years have now elapsed since the government of the Dominican Republic assumed the full control of the Central Railroad, and each succeeding year has shown a greater profit than the preceding one. This is a most gratifying indication of the progress and sound fiscal management of the republic. According to the accounts submitted by the company for the year 1910, the total gross receipts amounted to $284,421.72; of this total, $281,517.06 were received from freight and passenger traffic. The net earning of the line for the year aggregated $73,419.40, which represents a 5½ per cent. income on the estimated value of the road, including the Santiago-Moca branch. The number of miles covered by passenger trains during the year totaled over 37,000.

EDUCATIONAL VALUE OF THE ATLANTIC CITY EXHIBITS.

Those who do not attend the Atlantic City conventions may be surprised to learn of the extent and completeness of the exhibits which are made by the members of the Railway Supply Manufacturers' Association. At the recent convention there were 250 exhibitors with an exhibit space of 76,110 sq. ft. on the Million Dollar Pier. Seventy other concerns applied for space too late and could not be accommodated. In addition to the space on the pier, one large machinery exhibit occupied space across the Boardwalk from the pier, and there was a large track exhibit within two or three blocks of it.

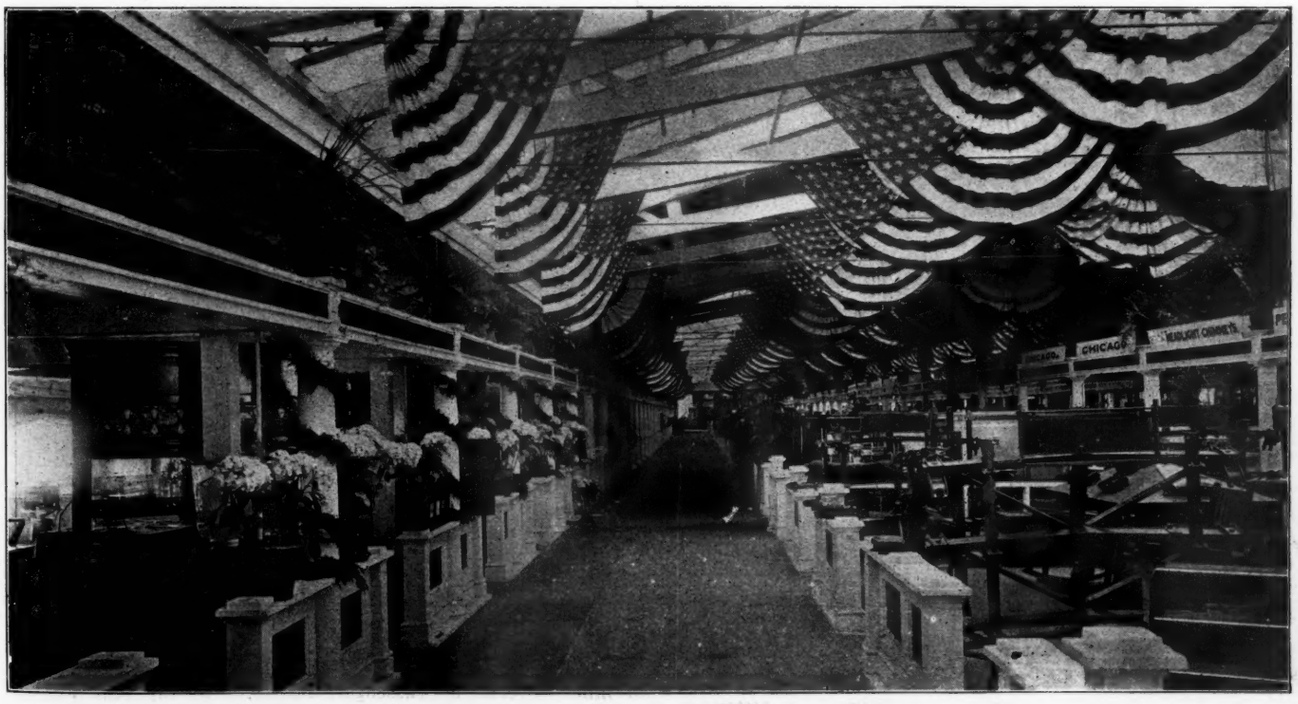


Arrangement of Exhibits on the Pier at the Atlantic City Convention.

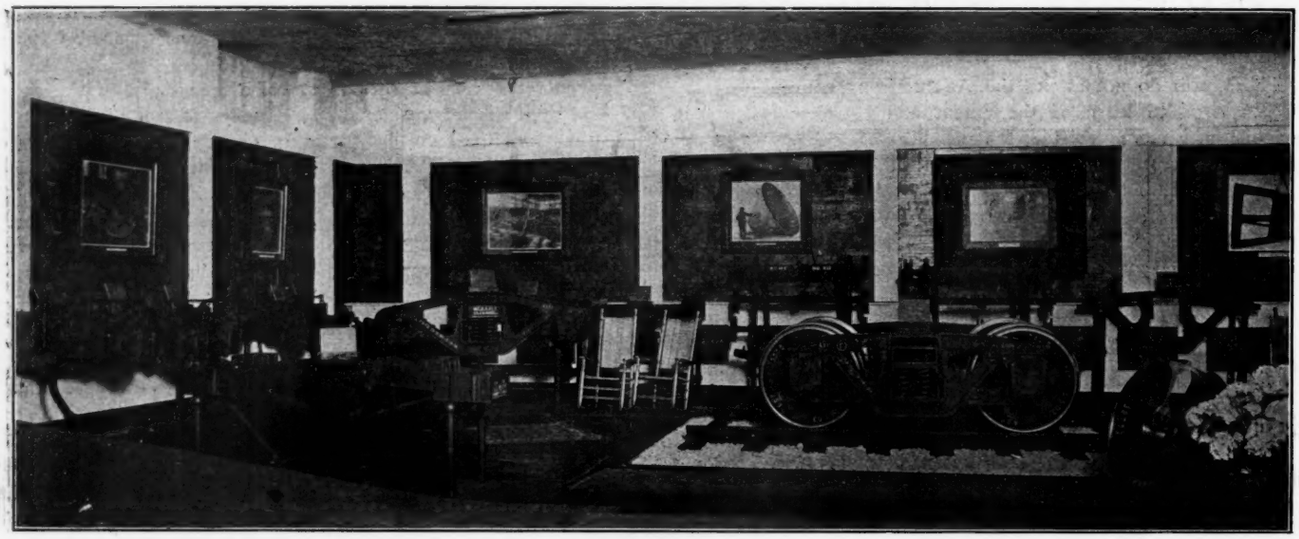
Practically all of the devices exhibited were for use on freight cars, passenger cars, locomotives, or in the shops, engine houses and repair yards for maintaining and repairing the equipment in charge of the mechanical department. The machinery exhibit, for instance, included a large variety of equipment varying from a small grinding wheel weighing a few ounces to a vertical turret boring mill weighing between 38,000 and 40,000 lbs. There was even a greater range of exhibits of apparatus or parts used on locomotives, these varying all the way from a small set screw to the three-cylinder compound locomotive on exhibition at the Philadelphia & Reading depot. For freight cars, the exhibits varied from a nut lock to the completed car; there was also a splendid line of material intended for use in passenger car construction and maintenance. In addition to these general classes of material there was shown a variety of small tools and other equipment, including hoists, jacks, water softeners, etc.

It would take many pages to describe the details of the exhibit in even a brief manner, but a complete list of the exhibits and the exhibitors will be found in the recent issues of the *Daily Railway Age Gazette.* The exhibits were not carelessly arranged, nor were they in the hands of men who did not understand the practical application or working of the apparatus in their charge. Much care and thought were directed to make the functions and advantages of the different devices as clear as possible, and the men in charge understood their application thoroughly and knew how to demonstrate their advantages clearly. In many cases the exhibits were in charge of men of engineering ability who had had a considerable amount of practical experience in railway mechanical departments.

Most of the machine tools were shown in actual operation; for example, a vertical turret boring mill was shown with three cutters working and removing material at the rate of about 1,700 lbs. per hour. High speed twist drills were shown in operation drilling material at remarkable rates of speed and feed. When the operation of the apparatus was more or less complicated and it was desired to show its workings clearly, or in cases where it was desirable to show the interior arrangement, the parts were shown in section, or models were used with parts cut away to show the working of the device. Two of the exhibits were equipped with stereopticons and moving



Looking Down One of the Aisles in the Annex.

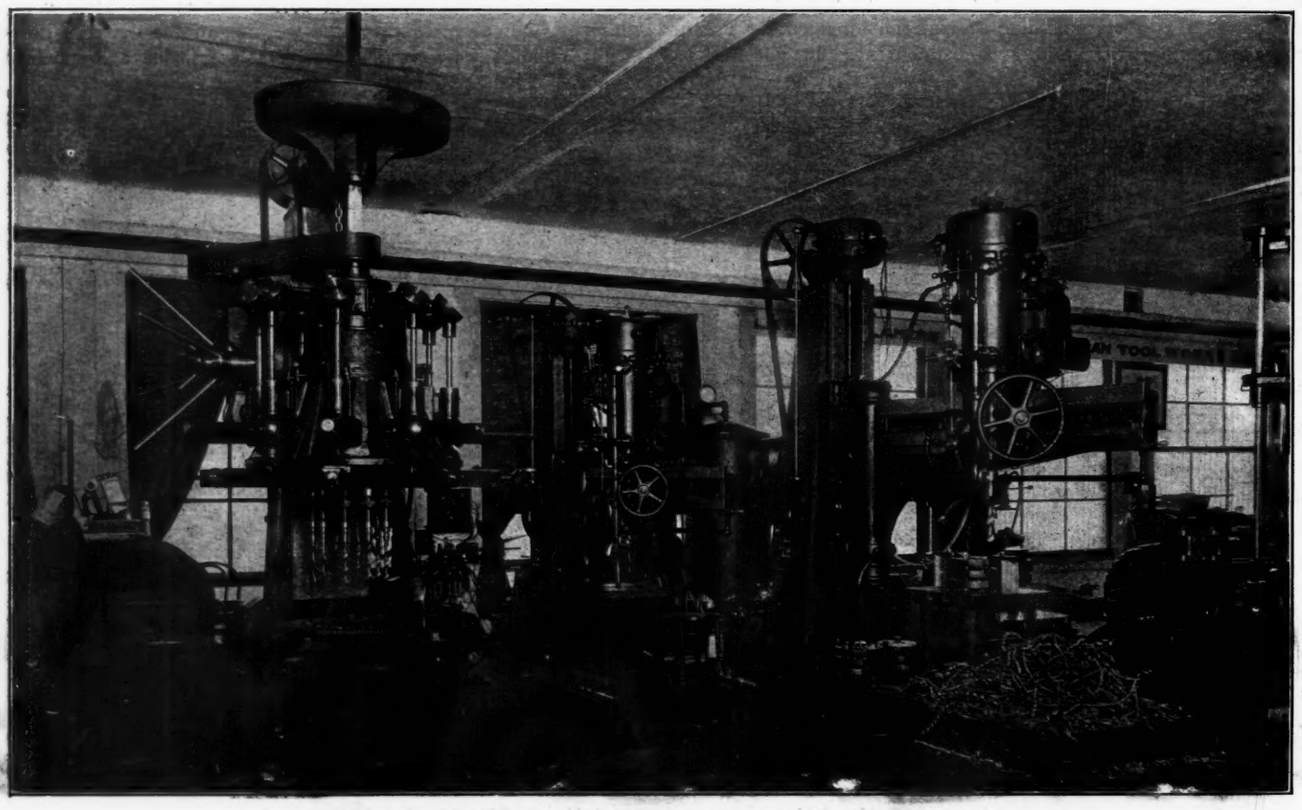


An Interesting and Extensive Exhibit of Car Appliances.

pictures showing operations as they were actually performed in railway shops or repair yards. On one part of the pier demonstrations were given of a welding apparatus; in another booth an electric magnet was in constant operation picking up pieces of iron and steel.

One of the illustrations shows part of an exceedingly important exhibit, judged from the viewpoint of educational value. Within recent years a tremendous advance has been made in railway blacksmith shop practice, due to the advent of forging machines. The value of these machines depends very largely upon their being in the hands of men who understand how to design the dies to be used with them. Smiths in various parts of the country have gone about this in different ways, and the exhibit above mentioned contained a large variety of the best pieces of work done by different shops throughout the country. While the dies which made the pieces were not shown, the man in charge of the exhibit had visited the various shops where they were used and was either thoroughly familiar with their construction and operation, or if not, was able to advise the inquirer just where the various parts were being made, so that he could either write to the foreman for further information or visit the shop.

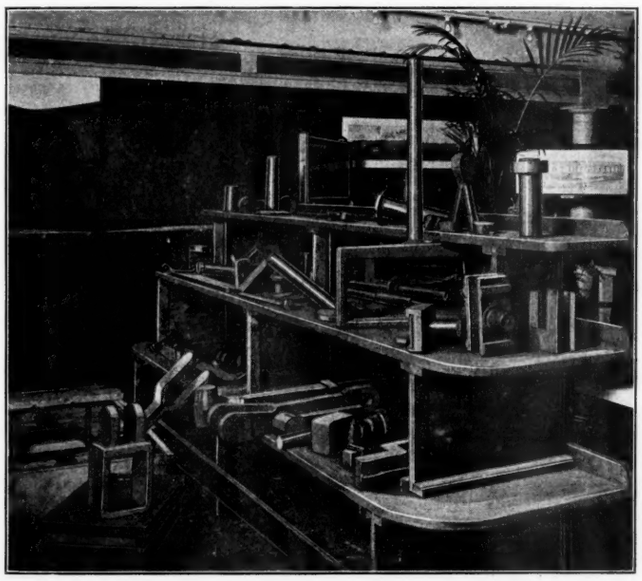
Another exhibit showed a locomotive stoker in operation. After a number of years of development the locomotive stoker is becoming more or less perfected and the introduction of the heavier capacity locomotives had made necessary some device of this kind. The exhibit in question was cleverly arranged so that its operation and the way in which it distributed the coal was much more evident than if it was actually in place on a locomotive.



A Corner in the Machinery Hall Showing Some of the Larger Machines.

The apprentice problem has been an extremely important one during the past few years, and among the exhibits was one of a correspondence school where three or four student apprentices were hard at work on their problems and papers. While all the exhibits did not show new devices, the greater proportion of them either showed devices which had developed during the past year or two, or recent improvements which had been made to old devices. Railway men who had tested some of the devices in their early development and had found them to be unsatisfactory could see whether they had been improved to meet their conditions. In one instance a device was exhibited by a company which had been working on it for a number of years, but had only perfected it within the last month or two. The trained engineer in charge of the exhibit was anxious to get the opinions of railway men, and it is quite possible that still further changes will be made before it is finally placed on the open market.

An effort was made in a general way to see just what class of men visited the different exhibits, and it was found that the men at the head of the mechanical departments seemed to be as much interested and spent as much time looking over them as did the younger men, who were of course inclined to



Difficult Forgings Made With Forging Machines.

spend a large amount of time in this study. One thing has made the study of the exhibits a far pleasanter matter than it was a few years ago. Before the abolition of the distribution of souvenirs, many men were inclined to give little attention to some of the exhibits, because they did not care to be placed in the undignified position of accepting or carrying about with them a lot of such souvenirs; now that this has been entirely done away with, railway men generally feel far more comfortable and are inclined to devote considerable more time to the exhibits.

General managers and higher executive officers on several roads have awakened to the tremendous advantages to be gained by having as many of their subordinates visit the convention as possible. For instance, the general manager of one road has issued orders that as far as possible all of the mechanical department officers, including the shop foremen, should at least spend a day or two at the conventions. The idea is that these men will see many things among the exhibits that will suggest a solution to difficult problems with which they are confronted, and that by examining the exhibits and talking their problems over with those in charge and with other railway men, their efficiency will be greatly increased and they will return to their work with renewed energy and inspiration.

A BRITISH COMMISSION ON RAILWAY AGREEMENTS AND CONSOLIDATIONS.

In June, 1909, a committee was appointed by the English Board of Trade "To consider and report as soon as practicable what changes, if any, are expedient in the law relating to agrements among railway companies, and what, if any, general provisions ought to be embodied for the purpose of safeguarding the various interests affected in future Acts of Parliament authorizing railway amalgamations or working unions."

This committee a short time ago made its report, which, it is believed, will be of interest to most Americans who are interested in the question of the extent to which government should seek to prevent or encourage concerted action by railways regarding rates and service. The following abstract of the report is from *The Scotsman:*

The early part of the committee's report is devoted to an analysis of the amount and character of existing competition between railway companies, and its effects both upon the companies and its effects both upon the companies themselves and the public they serve. Their investigations on this point led the committee to the following general conclusions:

(1) That the effects of the limited degree of competition still existing between railway companies are not necessarily to the public advantage, and having regard to the fact that much of the unnecessary burden which competition undoubtedly imposes upon the companies themselves, is likely in the long run to be passed on in one form or another to the public, we cannot doubt that the balance of advantage, not only to the railway companies, but also to the public, would be found to attach to a properly regulated extension of co-operation rather than to a revival of competition.

(2) That even had we come to a different conclusion with regard to the value of competition, we should have been unable to suggest any means for securing its continuance. The railway system is the creature of parliament in a sense not applicable to other industries, and it is regulated and limited by law in a manner different from other industries and undertakings. That this control is in the nature of the case necessary to the larger industries of the country is incontestable, but while parliament may enact that this must be done and that must be prohibited, past experience shows that even parliament appears to be powerless to prevent two parties, either by agreement or without formal agreement from abstaining from a course of action—namely, active competition—which neither party desires to take. Parliament can, of course, refuse to sanction bills authorizing the amalgamation or working union of two or more railway companies, and may provide that certain classes of agreement shall be invalid or even illegal, but it cannot prevent railway companies coming to an understanding with each other to adopt a common course of action or to cease from active competition.

(3) That experience has shown that informal combinations of this kind, while likely to be of less advantage to the companies than more formal and complete unions, can destroy competition just as effectively, and, moreover, possess certain incidental disadvantages from the public point of view, from which a monopoly under a single control is free.

The committee proceed: "In view of these conclusions on matters of fact we have come to the further and unanimous conclusion that the natural lines of development of an improved and more economical railway system lie in the direction of more perfect understandings and co-operation between the various railway companies, which must frequently, although not always, be secured by formal agreements of varying scope and completeness, amounting in some cases to working unions and amalgamations. We have therefore felt it our duty to refuse to adopt any suggestions or recommendations having for their object to make such arrangements difficult or impossible, and any which would make them so onerous to the railway companies as to deprive them of all the economic advantages of a

course of action, they might be able to prove would tend towards economy and efficiency in carrying out the objects for which they originally received their powers from parliament."

On the question, "What is the proper method of safeguarding the interest likely to be affected by railway combinations?" the committee make some interesting comments. They say that there are two distinct ways in which the attempt may be made to safeguard interests which might be prejudiced by agreements between railway companies. One is to require the agreement to be submitted to some public authority for sanction, as is now the case in respect of amalgamations, working unions, leases, and some working agreements, with the hope of securing that the terms of the agreement shall not of themselves unfairly affect any section of the public. An extension of this method would be to give the sanctioning authority explicit power as a condition of its approval to require that the companies entering into the agreements shall submit to such protective conditions in the interests of the public as the authority may think proper to impose. The other method is to provide a legal remedy for such evils as may be shown to be associated with the growing tendency to closer co-operation in so far as effective remedies are not provided by the existing general law of railway regulations.

"The first method was suggested by some witnesses, but it became evident to the committee in the course of the inquiry that it was impracticable. In the first place, in order to make such a plan effective, it would have to be provided that the arrangements for the reduction of competition should be submitted to the tribunal, and unless informal understandings were to be included in the scope of the procedure, the main source of complaint would be left untouched. So long as the companies concerned choose on their own responsibility to adopt the views of a conference as to what the rate between two points should be, it is hard to see how they can be prevented from doing so. Obviously the submission to a tribunal of arrangements which may be the result of a merely verbal understanding could not be enforced. Furthermore, it seemed to the committee that an adventitious control over rates and facilities on the sole ground that they were specified in an agreement would not be satisfactory, and any public control should apply equally to rates and facilities, whether they are fixed independently or by agreement. The committee cannot see that to give such a power as suggested to any tribunal would afford the public any real protection, and they arrive at the conclusion that any protection required against combined action which would deprive the public of advantages they now enjoy must be afforded by general legislation under which a remedy for such treatment would be afforded, whether it could be shown to be connected with an agreement or understanding between railway companies or not."

After discussing the second method suggested, the committee sum up as follows: "We are strongly of opinion that in so far as protection is required from any of the consequences which may be associated with railway co-operation, such protection should in the main be afforded by general legislation dealing with the consequences as such independently of whether they occur as a result of agreements or not. Such a method would afford a much more extensive protection than the regulation of agreements. It would protect the public in the case of understandings as well as agreements. It would be equally operative whether the agreement were made under existing powers or under express powers from parliament, such as an amalgamation. There would be no inducement created by its adoption for the companies to effect their objects indirectly or secretly. It would not provide a machinery likely to be used by powerful sections of the public or other railway companies to obtain special advantages, not on merits but as a condition of withdrawing their opposition to the approval of the agreement. It would not tend to introduce a confusing distinction of law or practice between what a company might reasonably do under an agreement and what it might reasonably do if no agreement existed."

In addition to the general conclusions given above, the committee make a number of more detailed recommendations, which are in some cases subject to limitations or conditions stated fully in the report. They include the following:

That it should be provided that where a facility or service is diminished or withdrawn it should be upon the railway company to show that the reduction or withdrawal is reasonable.

That it should be upon the railway company to justify a charge made for a service hitherto rendered gratuitously.

That the Board of Trade or the Railway and Canal Commission should in certain circumstances be given power to amend the statutory classification of merchandise traffic.

The railway companies should be encouraged to deal locally with complaints to a greater extent than is now the case.

That further facilities for making working agreements should be afforded by the amendment of Section 87 of the Railway Clauses Act, 1845.

That working agreements and pooling agreements and other agreements of an important character should be required to be published.

That the constitution and functions of conferences or other Clearing-House Committees appointed by the railway companies should be made public.

That Standing Order 145 A of the House of Commons should be extended so as to require a report on bills authorizing railway combinations, if any alteration in maximum powers of charge appears to the Board of Trade to be desirable.

That the following conditions should be applicable to companies amalgamating or entering into working unions, leases, or working agreements:

(a) The companies' systems should be deemed to be the railway of one company.

(b) The maximum rate chargeable should be reckoned continuously as if the companies were one company.

That in the case of companies amalgamating or entering into other statutory unions:

(a) The maximum charges should be revised in accordance with suggestions contained in the report.

(b) Provisions should be introduced into the act restricting dismissals of servants in consequence of arrangements sanctioned by the act, and providing for compensation to be paid in such cases, including compensation for the loss of any superannuation or pension fund benefits.

(c) Care should be taken that nothing in the act prejudices any person any pension rights or the security of any pension funds.

(d) In the absence of special circumstances, the opportunity of a proposed fusion should not be used as a lever to impose further conditions than we have suggested upon the combining companies, either in the interests of the public or other companies.

In conclusion, the committee remark: "We believe that the measures we recommend would, if adopted, go far to protect the general public against any possible abuses of the powers conferred upon railway companies, and to allay any dissatisfaction and apprehension which may at present exist regarding their action, and at the same time we feel that these measures should in the long run prove advantageous rather than the reverse to the companies themselves."

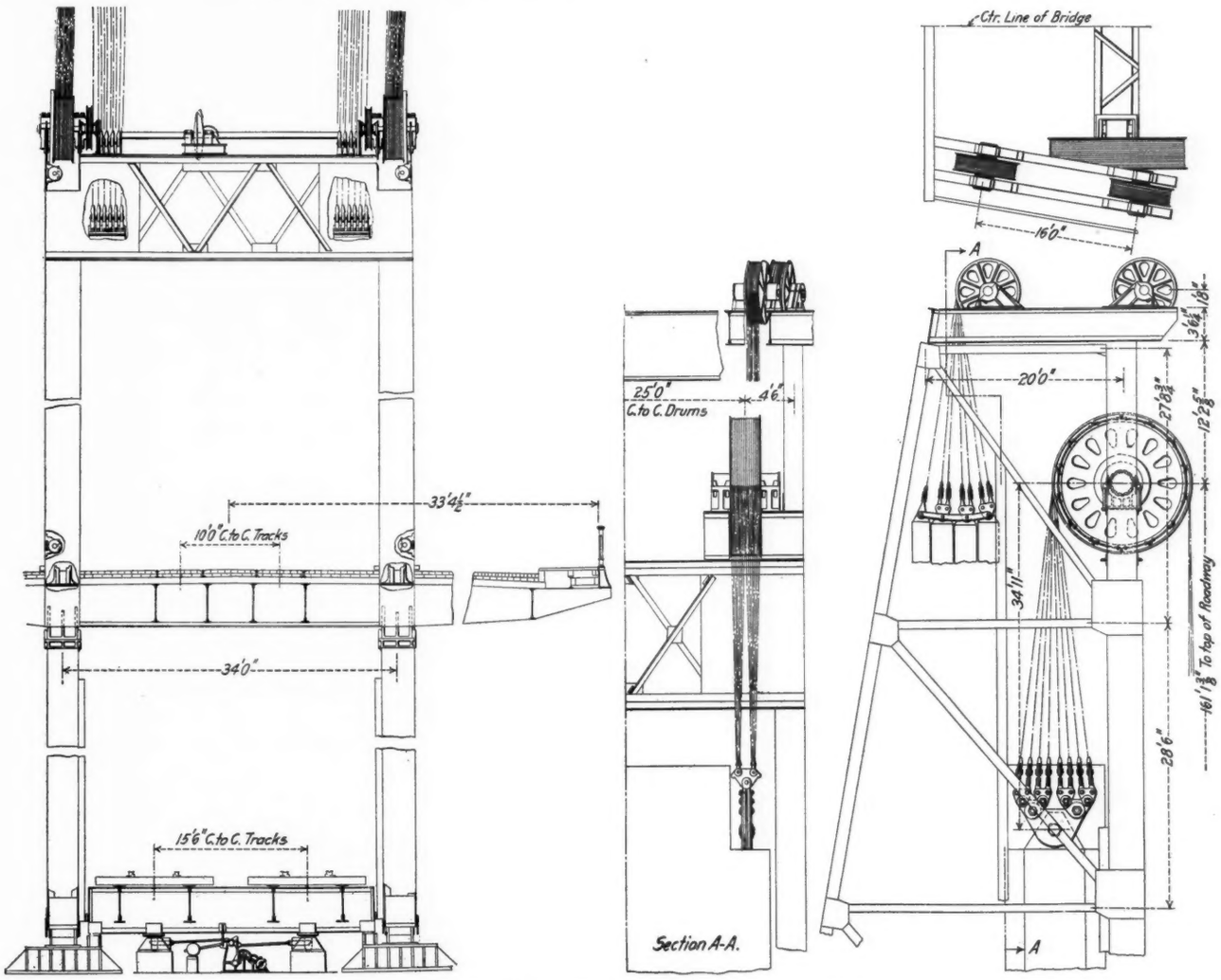
Reports from Bluefields, Nicaragua, indicate that preliminary work on the construction of the railway from the Atlantic coast into the interior of the country, has already been commenced. The proposed line will run from Bluefields to Rama by way of the Escondido river, and from Rama to San Ubaldo, a port on the Great Lake. It is also proposed to open up the Escondido river for general navigation.

OREGON-WASHINGTON RAILROAD & NAVIGATION COMPANY'S PORTLAND BRIDGE.

The Willamette river flows through the city of Portland, Ore., in a northerly direction, and discharges into the Columbia river at a point some eight miles distant. The principal business districts and important resident sections of Portland are on the west side of the river, while the larger and most rapidly growing residence portion of the city is on the east side. This condition produces a very heavy trans-river movement of highway traffic which, at the present time, is accommodated by four bridges.

The Oregon-Washington Railroad & Navigation Company's tracks lead westward through Oregon along the south bank of the Columbia river, and, as its passenger station and terminals are on the west side of the Willamette river, all trains must cross that stream. These are now accommodated by a double deck bridge having a single railway track below, and a roadway 32 ft. wide for street cars and highway traffic above, located quite near the center of the business district of Portland. This structure, locally known as the Steel Bridge, was built some thirty years ago, being the first steel bridge on the river. It is located at the narrowest part of the stream, and consists of a 340-ft. swing span, and a 310-ft. fixed span over the river, with steel trestle and through truss spans for the highway approaches at each end.

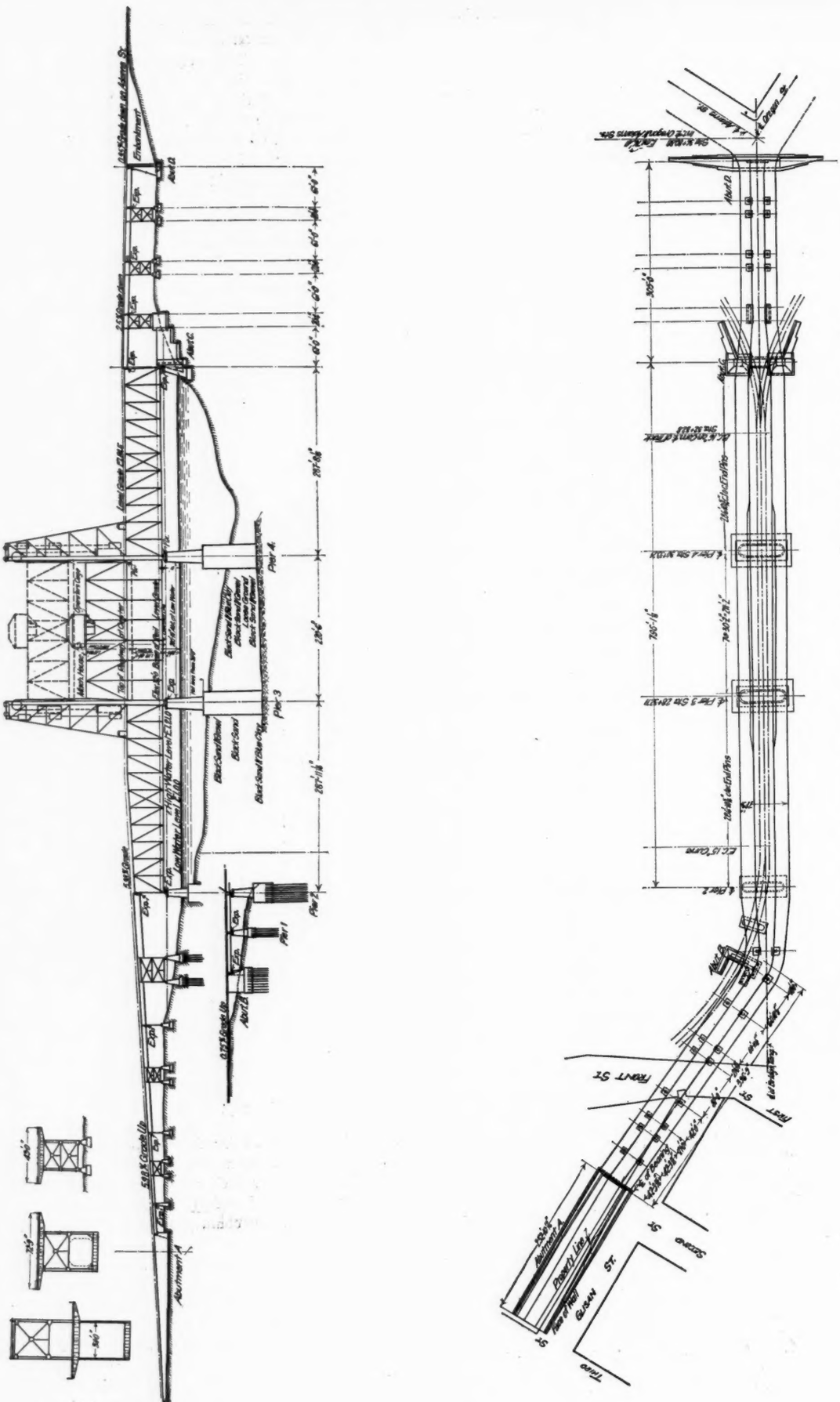
The Willamette river forms a magnificent fresh water harbor at Portland, deep enough for ocean vessels of heavy draft, and accommodates a heavy traffic of boats and vessels of every character—regular packet lines up and down both the Columbia and the Willamette, coastal freight and passenger lines, log towing steamers, lumber schooners, ocean tramps, and ships and sailing vessels of all kinds. The frequent passage of this river traffic interferes seriously with the traffic across the bridges, requiring frequent operation of the swing spans and causing repeated congestion of vehicular, street car, and pedestrian traffic. The steel bridge has a record of being opened 35,000 times in one year; or, allowing five minutes for operation (which is rarely reduced) the draw is open some eight hours out of every twenty-four. By far the larger part of the traffic on the river—perhaps 90 per cent.—consists of low, river steamboats, not requiring excessive clearance heights; and it is apparent that by constructing a bridge in which the lower deck should accommodate the railway traffic at the low level required for the terminals on each side of the river, and the upper deck should accommodate the highway traffic, so that the lower deck could be operated for the passage of small boats without interferring with the highway traffic on the upper deck, the latter could proceed almost without interruption throughout the day.



Sections Through Lift Span, Showing Lifting Machinery.

These conditions presented themselves to the officials of the railway company when, because of the deterioration of the old structure and of the necessity for providing double track facilities for a much heavier loading than the existing spans could support, the question of replacing the old bridge with a new one was taken under consideration. The structure which seemed most perfectly to accommodate itself to the existing conditions was a double action life bridge, which is now under construction.

The new bridge is about 700 ft. up-stream and approximately



Plan and Elevation of Willamette River Bridge; Oregon-Washington Railroad & Navigation Co.

parallel to the present steel bridge. The highway approaches leading to the upper deck extend from the corner of Third and Glisan streets at the west side to the corner of Oregon and Adams streets at the east side of the river. The highway approach, 512 ft. long, and the easterly highway approach 300 ft. long, consist of a roadway paved with creosoted blocks on deck girder spans supported by steel columns resting on concrete pedestals, and contain no unusual structural features. The railway tracks on the lower deck enter from the Union Station Terminals on a 15-deg. curve, they then cross the river to the east, and afterwards pass from the bridge, both up-stream and down-stream, on 16-deg. curves.

The bridge over the river consists of three riveted truss spans. The two side spans are fixed and the central or movable span is arranged to be lifted vertically between two towers supported on the piers and stayed by the fixed spans. The alinement of tracks requires that both fixed spans be of the spread type, so that the westerly fixed span, about 287 ft. long, is 34 ft. at the river end and 40 ft. 3 in. at the shore end, center to center of trusses; and the easterly fixed span, likewise 287 ft. long, is 34 ft. at the river end and 71 ft. 6 in. at the shore end, between centers and trusses. The fixed spans carry the railways on their lower deck and support the highways on their upper deck. The lifting span consists of a through truss span for the highway floor, and a lifting deck for the railway floor. The lower, or railway, deck provides for a double track railway; the upper, or highway, deck provides a roadway 70 ft. between hand rails accommodating double street car tracks, paved roadways that separate fast and slow traffic, and footways for pedestrians.

LIFTING DECK AND LIFTING SPAN.

The lifting deck consists of a usual double track railway deck, consisting of floor beams and stringers, with a lower lateral system and a bottom chord, which is suspended from the trusses of the lifting span by hangers that rise centrally inside of the truss posts when the deck is lifted. When the lifting deck is in position for train traffic its end rests on the piers in suitable shoes, and all wind and vibration stresses are carried through the lateral system directly to the masonry. Each intermediate panel point is suspended by a hanger, and the live load on the lower deck is transmitted to the trusses of the lifting span through pins in the top of the hangers, which are seated in sockets in diaphragms provided in the truss posts.

The lifting deck is held down when in train service by locks on the piers engaging the end floor beams, and by a lock over each hanger in the truss posts. All the locks engage automatically as the deck descends and all are opened simultaneously by electric power. Each pair of hangers is connected to a counterweight by eight wire cables, four per hanger, and the end floor beams are connected to a separate counterweight by four cables, two at each end. Each group of counterweight cables is connected by equalizers which distribute the load equally among them. These cables carry the dead load of the lifting deck and extend from the hangers up through the truss posts, over sheaves above the panel points of the lifting span, thence under common drums at the corners of the lifting span, thence up and over sheaves on the tops of the towers, and so to the counterweights. The pairs of drums at each end of the lifting span are connected together by transverse shafting, and the four drums are revolved simultaneously by motors and gearing placed in the machinery house in the center of the lifting span. Thus the force exerted on the counterweight cables through the friction between them and the corner drums raises and lowers the lifting deck. The operation of the lifting deck in no way affects the movement of traffic on the upper roadways.

To provide for the passage of the loftier vessels, the span supporting the lifting deck is likewise constructed to be lifted between the towers, so as to give the maximum required clearance of 135 ft. above high water. This lifting span is suspended by 64 counterweight cables, 16 at each corner, which pass up and over sheaves at the tops of the towers and thence are connected to counterweights of steel and concrete. These cables are so connected by equalizers that each one carries the same load. The lifting span is thus fully counterbalanced. As the lifting deck is likewise counterbalanced by the series of individual counterweights for each panel, the entire moving structure, consisting of the lifting deck and the lifting span, is fully balanced.

The lift span is operated by four drums, which are actuated through a train of gears by two street railway type motors. Each drum operates two pairs of ropes, one of which runs from the top of the drum over a sheave on the corner of the span and connects to the bottom of the tower post, while the other leads from the bottom of the drum under the sheave on the corner of the span and connects to the top of the tower post. All four corners are similarly connected. The rotation of the drums in one direction winds on the ropes which lead to the tops of the towers and pays off those which lead to the bottoms of the towers, lifting the span by the force exerted on the sheaves on the corners of the span. Reversal of direction of rotation of the drums brings the span back to position for service. The application of brakes on the operating drums effectively anchors the span in position for traffic, but locks are also provided at each corner, automatically engaging and further assuring the stability of the lifting span during the operation of the lifting deck.

The gearing for driving the operating drums of the lifting span is operated by two electric motors, and the gearing operating the lifting deck by two like motors; the arrangement and connection of the motors are such that it is possible to operate either the lifting deck or the lifting span with any two of the four motors. These motors are controlled in series-parallel, and limit switches automatically cut off the current and apply the brakes near the upper and lower extreme of both movements. Hand-operated brakes are likewise provided. Suitable trolley wires are supported on each tower, and trolley collectors are attached to the lifting span to supply current during movement. The lifting deck can be raised to its extreme position in 30 seconds, and the lifting span can be raised to its highest point in 90 seconds. The various locks are drawn by motors, and the entire machinery is interlocking, so that it is impossible to move the lifting machinery until all locks are withdrawn. The locks are driven automatically.

Both the lifting deck and the lifting span are guided in their movements by guides on each corner which engage on suitable tracks on the tower columns. For the deck, the moving guides are merely sliding contacts holding in both longitudinal and transverse position at one end, but only transversely at the other, thus allowing for temperature variations. The guides on the lifting span are rollers for both transverse and longitudinal guidance backed by heavy springs so that the longitudinal rollers are pressed against the guide tracks at all times regardless of the span length variation and the live load deflections of the towers. When the lifting span is rising the lifting deck is held tightly to it in immediate contact, so that when the span is reseated the guides on the deck are properly entered on their respective tracks. Tapered center castings at the bottom of the runs guide the moving deck and the moving span to exact position.

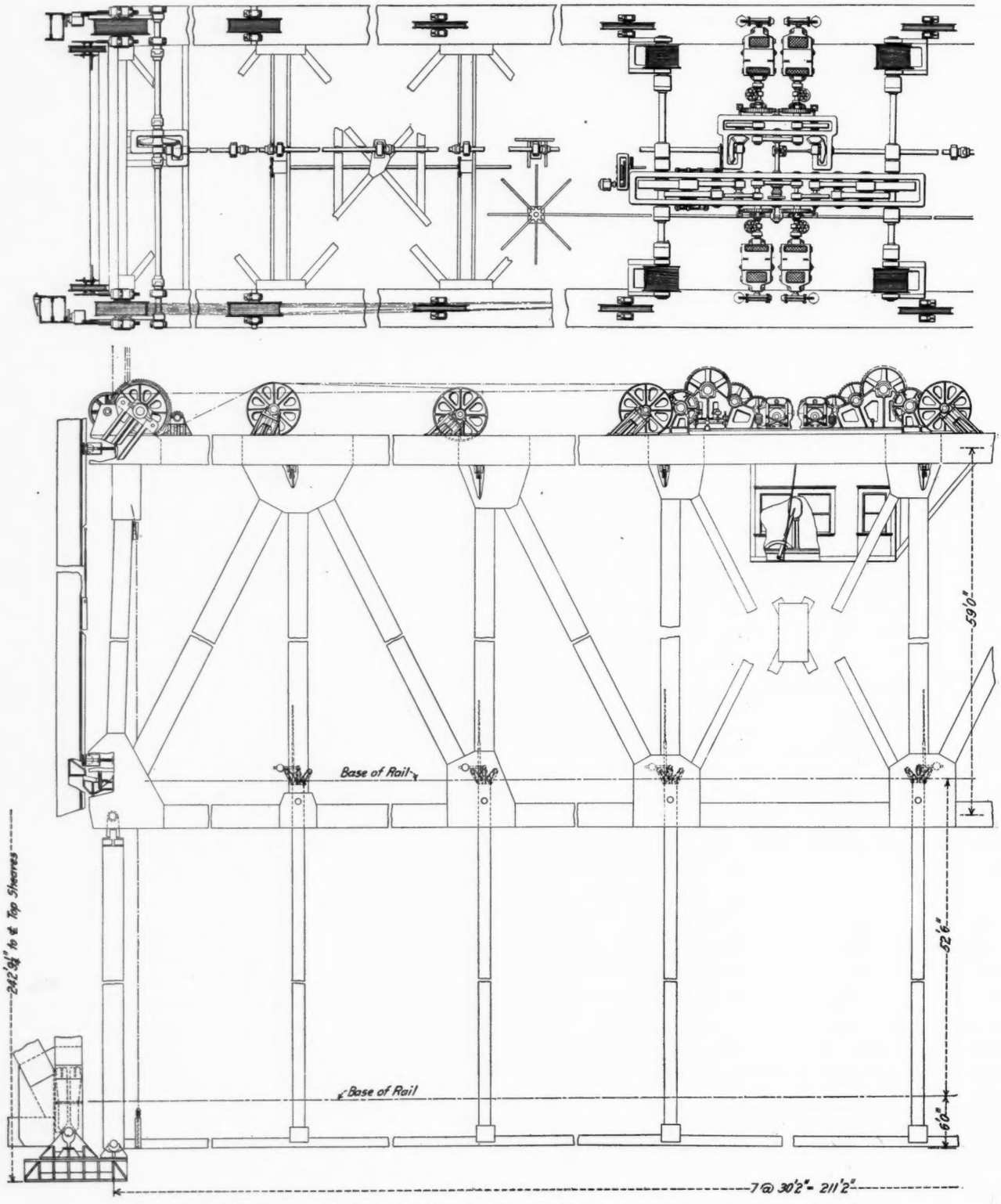
A 12-in. gas main, carrying gas at about 60 lbs. pressure, is carried over the bridge and continuous service maintained in it. This is accomplished by depending from the section of pipe lying on the top chord of the lift span two vertical sections of pipe which telescope vertical sections of larger pipe which connect to the pipes carried out from shore on the lower deck of the fixed spans. Stuffing boxes at the upper ends of the fixed vertical sections maintain the tightness of the connection. Thus the gas is free to flow uninterruptedly from shore to shore, even when the span is lifted.

SUPERSTRUCTURE DETAILS.

There are many features of the design of the superstructure which are worthy of comment, but only a limited number can be mentioned. The entire structure is built in accordance with

common standard specifications 1006 and 1012 of the railway company. The three truss spans are all fully riveted and offer unusual problems only because of their size and weight, and because of the amount of difficult detailing caused by the skews and angles. The maximum bottom chord section of the east fixed span contains 316 sq. in. of metal. All gusset plates were carefully designed for tension, compression, and shear. The camber was arranged so as to make the chords of the fixed spans horizontal under full dead load and live load, and the shop lengths of all members were so figured. The towers are vertical under dead load only on the fixed spans. The towers will, therefore, be almost vertical during the movement of the lifting span, because only a small part of the total live load can be on the fixed spans while the lifting span is being raised.

The chords for the lifting span and the lifting deck are figured to be horizontal under dead load and one-half live load, which condition will give a mean position for the variation in panel length of the lifting span between that for dead load only and



Plan and Elevation of Lifting Machinery; Oregon-Washington Railroad & Navigation Co.

that for dead load and full live load. The towers are designed for a wind pressure of 15 lbs. per sq. ft. when the lifting span is being raised, and for 30 lbs. per sq. ft. when the lifting span is down. The total load on the shoe of each tower column is about 6,500,000 lbs., which is supported on a cast steel base 12 ft. x 12 ft. 6 in. The load is carried onto the shoe through a 13½ in. pin, which is in full bearing throughout its length. This is accomplished by a steel casting between the gusset plates, which takes the load from the end posts of the fixed span, and on which the tower column rests.

The entire machinery is designed with great care, not only for operation, but also for maintenance, and means are provided for replacing all parts without serious interference. Special details of seats for jacks are provided in the cases of the large supporting sheaves and drums, so that the brasses can be replaced without difficulty should it become necessary to do so.

The machinery house is placed on top of the lifting span, is built of wood on a steel frame, and is equipped with a hand-crane for convenience in handling the machinery. The operator's house is in the lifting span, above the clearance line, immediately underneath the machinery house.

The highway deck is paved with creosoted blocks laid on creosoted planks which are supported by creosoted cross ties. The sidewalks are of untreated planks. Electric lighting is provided by clusters of lights supported at antervals of about 50 ft. in the handrails. There are the usual special lights in the machinery house, in the gate tender houses, and on the spans and piers for river traffic signals.

SUBSTRUCTURE.

The Willamette river at the site of the bridge has a maximum depth of 90 ft. below low water, and the variation from low water to ordinary high water is 21 ft. One main river pier is founded on a hard cemented gravel about 130 ft., the other about 120 ft. below low water. These piers were sunk to position by the open-dredging process. Their bases are 36 ft. wide and 72 ft. long. Each consists of a timber crib filled with concrete. The crib contains six well holes for dredging, each 9 ft. square from the top of the crib to a point 11 ft. above the cutting edge, below which point the dredging wells flare out to occupy the entire area of the crib at its bottom. The entire perimeter of the crib, its central longitudinal cross walls, and its two transverse cross walls are shod with a steel cutting edge made up of ½ in. plates inside and outside, with 6 in. x. 6 in. x ¾ in. angles at the bottom riveted together and well bolted to the timber. The lower 11 ft. of the crib are of solid timber, and, from that point, walls 12 in. thick are carried up, and the entire spaces around the dredging wells were filled with concrete as the cribs were sunk to position. After being satisfactorily founded on the cemented gravel, the dredging wells were all filled with concrete deposited through water to such a point as it was convenient to pump out, when the balance of concrete was placed in the dry. The crib proper extends upward to about 20 ft. below low water, at which point the neatwork of the shafts begin. Suitable coffer dams were connected to the cribs by large bolts, and after the shaft forms had been filled with concrete and removed, the coffer dams were unbolted and likewise removed, leaving the pier complete.

In the construction of each of these piers a substantial dock was first constructed in the river, consisting of about 100 piles well driven down, capped, and braced together. Borings were then made around the entire perimeter of the crib, at spaces about 8 ft. apart, and the elevations of the hard material at all points were determined. It was found to be on a very considerable slope, showing a difference of elevation of 22 ft. for opposite diagonal corners. When these elevations were determined, pipes were successively sunk at numerous points around the perimeter, and in the location of cross walls, and holes were drilled in the hard material to a common level some 2 ft. below the lowest elevation of the top of the cemented gravel. As soon as the drilling at each hole had been completed to the proper elevation, a cartridge of black powder and dynamite in a sheet iron case was lowered to the bottom of the hole and discharged by an electric battery. This process was repeated at such frequent intervals as it was deemed would produce a bottom uniform in character throughout the entire area of the crib. Thus the blasting for leveling the cement gravel was carried on before any excavation was made through 50 ft. of gravel and sand. In the meantime the steel cutting edges had been set up and riveted together on ways in a ship-yard convenient, and enough timber put on to float the crib, which in this condition was some 30 ft. high. It was then floated into position in the dock already prepared, and other piles driven on the open end of the dock entirely enclosing the crib. Concreting in the spaces around the dredging pockets and building up the timber walls proceeded simultaneously at such speed as was necessary to settle the crib to the bottom. Dredging was carried on both by means of orange peel buckets on derricks and by the use of hydraulic jacks, consisting of a water syphon operated by large force pumps. On reaching the cemented gravel, which had been broken up by the blasting, the dredging proceeded more slowly, and had to be done by the buckets only until the crib reached satisfactory position, practically at the elevation previously determined by the blasting. The total height of each pier is about 140 ft. and each contains 8,650 cubic yards.

The west pier, supporting the end of the west fixed span, rests on piles which were sunk inside a timber crib by water jets to a satisfactory depth, and it involves no unusual features of construction.

The east end of the east fixed span rests on an abutment near the water's edge. While the extreme depth of water was only about 25 ft. the cemented gravel is practically exposed, being merely overlaid a few feet deep by loose, round boulders; and, as it is exceedingly hard, there was some difficulty in constructing a suitable coffer dam. Wooden piles, even when shod with iron points, could not penetrate sufficiently to stand upright, therefore the coffer dam was constructed by driving down two rows of old steels rails about 5 ft. apart. Waling timbers were placed inside of these rails and suitably fastened, and triple-lap wooden sheet piling was placed within and driven down to the cemented gravel. A quantity of mud and gravel pumped out of one of the river piers was then piled up on the river side of the wall, and a rich grout mortar was deposited in the coffer dam through a pipe, in order to cement the boulders together and make a sealed connection with the hard material. The remaining space between the walls was filled with clay and loam. The coffer dam was then pumped out with great success, and the work on the abutment proceeded in the dry.

Not only does the structure now being built accommodate itself perfectly to conditions of both highway traffic and river traffic, but it has also numerous other advantages. For the operation of boats on the river one wide channel is provided instead of the usual two narrow ones separated by a large pivot pier. No draw rest is required, and the boats can pass through the opening at any angle without finding it necesasry to approach in a certain line, as is compulsory when they must parallel a draw rest. The effect in the currents of the river from the two piers tends to keep the vessel in the center of the opening rather than to throw it to one side, as is the case of the swing span openings, particularly because of the large, substantial draw protection required. Many of the boats plying on the Willamette river tow very large rafts of logs, and the advantage of not being restricted to a definite course in passing through the bridge is much appreciated by the river pilots. The expense of construction and maintenance of the draw rest is saved, and the latter, because of the deep water and the current conditions, is considerable.

In addition to this, the structure as built represents a very considerable saving over the ordinary double deck swing span, which was originally contemplated. The total cost of the structure is estimated at $1,650,000.

This work is being done under the direction of John D. Isaacs, consulting engineer of the Harriman Lines; George W. Boschke,

chief engineer and assistant general manager of the Oregon-Washington Railroad & Navigation Company, and George T. Forsyth, bridge engineer. The bridge was designed by and is being built under the supervision of Waddell & Harrington, Kansas City, Mo. The foundations, now nearly complete, are being constructed by the Union Bridge & Construction Company, Kansas City. The American Bridge Company is fabricating the superstructure, and Robert Wakefield, Portland, is erecting it.

LETTERS FROM AN OLD RAILWAY OFFICIAL TO HIS SON, A GENERAL MANAGER.*

VIII.

Galveston, Texas, May 27, 1911.

My dear Boy: We were talking of the unit system of organization. There is little that is new about the system. Like many useful things in this world, it is mainly an adaptation of some very old principles and practices. From one viewpoint it is a rational extension of the simple principles of train despatching. The standard code does not attempt to supply the place of judgment in a train despatcher. It does not tell him when to put out a meet or a wait order. When his judgment dictates the necessity for any particular action, the standard code comes into play by prescribing forms, by imposing checks and safeguards, by simplifying methods, and by unifying practices. This gives greater opportunity for initiative and originality on the part of the despatcher by making routine of the detailed portion of the process. He has more time to think.

Because the unit system leaves so much to the thinking capacity of the men below, some people have found it difficult to understand. Many codes of organization attempt to cover in advance all the various cases that may come up. The unit system enunciates principles and prescribes methods, but leaves independence of action to the man on the ground. He is for the time being the judge as to what principle to apply. When men are carefully trained their first impulse is to do the right thing. This impulse has been dwarfed and deadened on many railways by artificial restraints which make a man doubtful of his authority. The unit system reverses some old presumptions and puts the burden of doubt upon him who questions the official authority.

We have to take human nature as we find it, not as we think it should be. The master mechanic or the division engineer is riding on the rear of a train, at the company's expense, and tells a young flagman that the latter did not go back far enough. If the flagman does not tell the official to go to h——, the trainmaster probably will. The trainmaster says, "This is *my* department, you have interfered with *my* man." That is the old feudal conception. He is not *my* man but the company's for service, and his own for individuality and citizenship. Let the master mechanic or the division engineer of many years' service report the flagman whose tenure may have been very brief. Human nature is such that the trainmaster, stung by an implied reflection, constitutes himself attorney for the defense. The papers grind through the baskets of the chief clerks. By and by, when everybody concerned has forgotten the incident, the papers come back with assurances of distinguished consideration and politely intimate that the case was not quite as bad as represented. The old official, in a measure discredited, soon stops concerning himself with flagmen. The management, the stockholders, and the public lose just as much possible protection through increased supervision. The salary and the expense account of the traveling official go on just the same.

On the Harriman Lines the master mechanic, like the division engineer, has the rank, title, and authority of assistant superintendent. Mind you, it is not assistant superintendent in charge of thus and so, but just assistant superintendent. An attempt to define duties in a circular of appointment might imply that all the responsibilities not enumerated would be necessarily excluded. So the assistant superintendent quietly speaks to the young flagman who profits by the instruction, and the incident is closed without recourse to the typewriter. For the technical brief to the Supreme Court there is substituted the rough and ready but surer justice of the police magistrate. The employee still has the right to appeal just as he had before, but seldom or never does he exercise it. There are, of course, intelligent limitations to all authority. Th mechanical assistant, or the maintenance assistant should not, for example, order the flagman to buy a new uniform. Common sense and courtesy have proved effectual safeguards against abuse of authority.

The underlying principle that responsibility breeds conservatism in action has operated to prevent those unseemly clashes of authority which many predicted. The good sense of the superintendents has served as an effectual balance wheel to maintain smooth running. The unit system does not deny or dispute the necessity for specialized talent for technical activities. It insists, however, that increased supervision of the countless phases of operation can be gained by utilizing all the official talent available. In many cases such increased supervision is a by-product. The maintenance assistant is inspecting track. The train stops. He cannot resume back inspection until the train starts. Meantime, he may be able to find time to see if the conductor receives his orders promptly, if the despatcher uses good judgment, if the station forces are alert, if the public are being well handled, if the news butcher has his wares over several needed seats in the smoking car. He may even go to the head end and tell the eagle eye how the black smoke indicates that the fire boy could save his own back and the company's good money by less liberal use of the shovel. Anything very technical requiring the presence of specialists for all these things? Of course, if a special problem develops, such as a badly adjusted shaft, it may be necessary later to get the more expert attention of a mechanical assistant. Often, however, before this stage is reached there can be rendered much economical first aid to injured operating expenses. This increased supervision, be it much or little, is clear gain for the company. It means more effort for the official, but that is what he is paid for. It is usually better in zero weather to have the old master mechanic and the old traveling engineer as assistant superintendents riding different trains on the road than to have them sitting in a comfortable office writing letters to each other about engines that failed last week or last month.

Once upon a time a traveling engineer talked through a telegraphone to a despatcher. The latter requested the former to have the freight train pull into clear to let another train by. The conductor was not in sight. He was probably in the caboose making out some of those imaginary reports about which grievance committees tell us and which are most in evidence during investigations of head-end collisions. So, this member of the ancient and honorable order of attorneys for the brotherhood told the brakemen where to head in. Whereupon with much professional profanity the trainmen declined, saying that no traveling engineer could tell them what to do. The superintendent took the brakemen out of service. They got back only on request of the traveling engineer to whom they apologized. While authority was vindicated, an undesirable situation had been developed. No matter how emphatic the vindication may be, it is as bad for discipline to have authority questioned as for a woman to have her virtue impugned. Since then the unit system on that division has made the traveling engineer an assistant superintendent, and the question of authority does not arise. Out in that part of the country a fast train was pulling out of a terminal. The trainmaster was out on the road. His clerk signed the trainmaster's name to a message, telling the old passenger conductor to make a stop to deliver what to the clerk was an important letter, ran down and handed both to the conductor. The latter demurred, saying that under his running orders the stop would make him miss a meeting point. The clerk insisted and when the conductor disregarded

the message the latter was taken out of service. This was done on the old feudal theory that the trainmaster's name and position must be respected. By the same reasoning a bank teller should honor a check on which he knows the signature is forged. Since then the unit system on that division requires everyone to do business in his own name. Employees obey the instructions of men shown by name on the time card, and are not at the mercy of clerks. The old trainmaster's name is more respected because it is signed only by himself and is not cheapened by use by Tom, Dick and Harry. (Anvil chorus: "Such things couldn't happen on our road." Perhaps not, but they do just the same, in a greater or less degree.)

When a conductor reports for train orders he has a right to know that a competent despatcher is on duty. He cannot dictate, however, what particular despatcher shall work the trick and give him his orders. The unit system carries this same principle to correspondence and reports. It denies the right of the employee to dictate what official shall handle a certain letter or report, under normal conditions. The report is addressed impersonally "Assistant Superintendent," and the office decides what official is most available. As a matter of common sense the expert in that line will be utilized. In his absence, however, his feudal representative, a clerk, will not act for him. The clerk may prepare the papers, but final action can be taken only by an official. Highly technical problems are sent to the absent official on the road or await his return. Each assistant may issue instructions, in his own name, to such subordinates on his own pay roll as roadmasters under the maintenance assistant, foremen under the maintenance assistant, foremen under the mechanical assistant, yardmasters under the transportation assistant, etc., etc. Before these instructions leave the office, they should pass, like all correspondence, over the desk of the senior assistant (chief of staff) for his information and for the prevention of possible conflict and confusion. Here, again, is a principle of train despatching. All orders concerning the running of trains go over the despatcher's table. Should there not be a similar check imposed on official instructions and information imparted to hundreds of delicate, sensitive, human machines, made in the image of God?

Why are not communications and reports addressed "Superintendent"? Because there would be an implied obligation for the superintendent to act. This obligation cannot be admitted under normal conditions. Therefore, to be honest and straightforward, the address is "Assistant Superintendent." Under this system the employee knows that some assistant will see his communication, not the clerk of somebody else. If the employee desires a particular official to see his communication, he makes it personal by prefixing that official's name.

Any employee can address the superintendent by name for the same good reason that the humblest citizen can appear in his own behalf in any court in the land. Though the court is open, neither the citizen nor his attorney can normally dictate what judge shall hear his case. Authority is abstract and impersonal. The court exists if the judge is dead. The exercise of authority is concrete and highly personal. The court is silent until the judge speaks. Conversely, the superintendent as the head of the unit may address any employee direct without going through the assistant on whose pay roll the employee is carried. Common sense and the personal equation of the officials concerned indicate how far this elastic feature can be carried. Courtesy requires prompt notification of the assistant concerned. Officials have superiors, and to attempt to convey the idea that each is a feudal chief, when in reality he is not, can result only in self-deception. The practice of each division superintendent re-issuing verbatim in his own name instruction circulars from the office of the superintendent of transportation is misleading and ridiculous.

All instructions from general officers, including the general manager, should come to employees through the superintendent's office, not only to respect the integrity of the organization unit, but to preserve a history of the transaction in the authorized office of record—to get all the runs, including the general manager's special, on the right train sheet as it were. Whoever acts, whether the superintendent himself or an assistant, has at hand in one office of record full information for his guidance. You understand that the superintendent is boss. He may see any or all communications from employees as he sees fit. Where previously he instructed his chief clerk what to bring to him personally, such instruction he now gives to his chief of staff. An employee who addressed "Assistant Superintendent" may receive a reply signed by the superintendent himself. This is an honest record, not a subterfuge. Some assistant, the chief of staff, has handled the paper as well as the superintendent himself. To the subordinate the superintendent is normally an incidental representative of authority entitled to the greater respect to be given his higher rank. To the general offices, and to co-ordinate units, the superintendent is an essential head of a component unit who must not be ignored. Therefore, since there is an implied obligation for the superintendent to answer superior authority himself, all communications from superior and co-ordinate authority are addressed impersonally, "Superintendent." A railway is so extensive that the superintendent should spend at least half the time out on his division. In his absence the chief of staff is allowed to communicate with the general offices and other divisions in his own name, but "for the superintendent." The superintendent may answer from the road himself, but in any case the general offices know who has really taken action. Going down on the division any assistant may sign, subject to review by the chief of staff. Going up to higher authority only the superintendent or his chief of staff may sign. The rights of the individual assistants are preserved by permitting any one to go on record to the general offices when he so desires. He writes his letter, addresses it "Assistant Superintendent," and takes it to either the superintendent or chief of staff and requests that it be forwarded. In this exceptional case a letter of transmittal is written setting forth the views of the superintendent. A cat may look at a king. A meritorious idea should not be throttled because it does not happen to appeal to the next superior.

When a division official on any road rides a train, he does not first thing try to tell the conductor what meeting points should be made. He usually says, "Let me see your orders," which is in effect asking the conductor what the despatcher has said must be done. Protected by this vital information the official may then venture some suggestions. In the preliminary lecture explaining the unwritten laws of the unit system the new assistant superintendents are cautioned to apply the same principle. They are not to see how much trouble they can make, but how little. If the transportation assistant, for example, pulls up to a water tank at 7:20 a. m. and sees the section men just going to work, he does not jump on the foreman for being late, but quietly asks, "What are your working hours? What time does the roadmaster tell you to begin work?" The moral effect of the presence of an alert, observing official, armed with sufficient authority, becomes an asset of value to the stockholders. We have not enough officials to ride every train and cover every point. The more open, intelligent supervision we can get from each official the better should be the operation. Of course, if the officials were not experienced railway men a condition of nagging and rawhiding might result which would prove fatal. What the unit system does is to try to make potential the latent knowledge and ability which every official possesses in a greater or less degree. The old over-specialized system denies that this stored up reserve exists to any practicable extent.

The fact that the title of assistant superintendent is uniform tends to bring out the real individuality of the different assistants. Each has to have his name on the door of his private office. As we hear less and less of "my department" and more and more of "this division," the references to "the trainmaster," "the master mechanic," etc., etc., give way to "Mr. A.," "Mr. B.," etc. The

assistant superintendents have definite seniority, and when two or more come together under circumstances rendering it necessary, as at a wreck, the senior present takes charge and becomes responsible. Remember that rank and authority can be conferred by seniority in grade as well as by grade itself.

The scriptural warning that no man can serve two masters is still applicable. In our case the master is the corporation, represented at different times by various individuals clothed with authority. The conductor runs his train under the laws of the land, the policy of the president, the rules of the general manager, the bulletins of the superintendent, the assignment of an assistant superintendent, the orders of a despatcher. He collects tickets and fares as directed by the general passenger agent and reports on forms prescribed by the auditor. The lower we go in the scale the fewer the superiors with whose instructions the employee comes in direct contact. The trackman knows authority only as its exercise is personified by his section foreman until the paymaster tells him to wipe off his feet before entering to receive his check. Therefore, put out a slow flag against too fast running over such low joints as "one boss," "complete resonsibility," "divided authority," etc., etc., until you feel certain just what speed they will stand.

Affectionately your own, D. A. D.

"GET ACQUAINTED" TRIPS ON THE OREGON SHORT LINE.

During the months of April, May and June, officers of the Oregon Short Line made a very interesting series of "get acquainted" trips over this road. They used a train of five cars, which was run special, and which was on the line a total of 22½ working days. The party covered 6,530 miles by rail and a little over 1,000 miles by automobile; made 117 stops, varying from a half hour to 36 hours in length, and met over 7,000 people. All departments of the road were represented, and representatives of the Pullman Company and the American Express Company were along. The local general agents of some of the road's connections also were included in the party at times. Its personnel was not the same on all the trips, as some changes were necessary in order to keep business moving at headquarters in Salt Lake City.

The following interesting recapitulation of the trips has been made:

	Miles.	Days consumed.	No. of stops.	Number of People Seen. Utah.	Ida.	Ore.	Wyo.	Mont.	Nev.	Total.
1st Trip	1,122	3	21	...	1,670	...	75	...	...	1,745
2nd Trip	380	2½	18	1,050	325	...	...	...	...	1,375
3rd Trip	1,286	5	25	...	1,475	365	...	...	...	1,840
4th Trip	902	4	26	25	1,315	...	...	...	...	1,340
5th Trip	900	3	11	...	20	...	...	250	...	270
6th Trip	1,941	5	16	...	...	...	...	...	465	465
Grand Total, 6 Trips...	6,531	22½	117	1,075	4,805	365	75	250	465	7,035

In the figures of the number of people seen there are not included 475 school children who attended the meetings and who were old enough to be interested in them. The only parts of the line not covered were the following: Main line south of Kaysville, Utah; east of Diamondville, Wyo.; and west of Weiser, Idaho; the Yellowstone branch north of Marysville, Idaho, and the northwest line north of Huntington, Ore.; the Cumberland branch and narrow gage line south of Mina, Nev.

The practice followed in arranging for the "get acquainted" visits at different places was for W. H. Bancroft, vice-president and general manager, to wire to the local agent at each point where it was intended to stop, advising him that a special train with representatives of the various departments of the road was to be run over the line, making stops at all the larger towns, the purpose being "to widen the acquaintance of the company's officials with citizens of the communities served by this railway and to increase their familiarity with conditions throughout the territory." "This method," it was added, "is adopted to enable them to cover the ground as rapidly as possible and yet have opportunity to meet everyone who may desire to see them at the various points." The agent was advised as definitely as possible, at least 24 hours in advance, of the exact time when the train would arrive, and was told that the officers would be greatly pleased to have the opportunity to meet as many of the citizens as possible. He was instructed to make known to the citizens the time and purpose of the visit and to wire E. C. Manson, general superintendent, 24 hours in advance what suggestions, if any, the people had to make as to the disposition of the railway men's time while in their city.

At the larger places the party made side trips about the town and neighborhood in automobiles, afterwards holding a business meeting. In smaller towns it usually held the business meeting only.

The trips have proved so successful that notwithstanding the time and expense involved it is believed that the plan of making them annually will be adopted by the company as a permanent policy. An officer of the roads says that they have been "an education to the railway men who participated, and in addition to familiarizing them with the territory and its needs, have brought them closer in touch with each other's difficulties and made them realize the necessity for co-operation and team work, as nothing else probably could have done. We were cordially received by the people everywhere and discussed an immense number of complaints and suggestions covering practically every phase of the business of the railway and its relations to the public. Many minor matters were adjusted on the spot and others were taken under advisement, and in still other cases requests had to be refused and the reasons why explained to the people. All this work was better and more expeditiously accomplished than by any other method would be possible. Our party was a sort of traveling general office, equipped to handle almost any railway question which might be presented.

"We found that the people were very glad to see us and were generally willing to meet us half way in the disposition of subjects in which they were interested. We found a few discontented ones who could not be placated. We located some sore spots which will need our attention in the future, but we are confident that the general effect of this visit and discussion has been to clear up a great deal of misunderstanding and to bring us closer in touch with our patrons and the public generally. It has also been an education to our local agents, who met with us and participated in our discussions with the people. A great many points the shippers complimented our agents and local force, and we were delighted to find the relations existing between our local representatives and our patrons were of the most amicable nature."

The unfinished section of the Central Paraguayan Railway, between Pirapo and Villa Encarnacion, has been completed, and railway traffic is possible now from Asuncion, the capital of the republic, to Villa Encarnacion, Paraguay, on the Upper Parana river opposite Posadas, in the Argentine Republic. Transfers will be made at the terminal stations of the Paraguayan and Argentine railway systems at Encarnacion and Posadas, respectively, by ferryboat. This enables the journey from Asuncion to Buenos Aires, or vice versa, to be made in from 30 to 35 hours. The trip from Buenos Aires to Asuncion, over the new line, takes the traveler northward through the delta of the Parana river to Ibicuy; from here through the richest agricultural section of the province of Entre Rios, Argentine republic; thence to Concordia and Santo Tome, on the Uruguay river, and up to Posadas. Here the Upper Parana river is crossed by ferryboat, landing passengers at Encarnacion, Paraguay, and from this point by rail to Asuncion, a distance of 234 miles. The Central Paraguay Railway propose to build 75 miles of new branches, one to Carapegua and another to Villeta, both situated in important agricultural sections of Paraguay.

POOR'S MANUAL FOR 1911.

The advance sheet of Poor's Manual of Railroads for 1911 (44th annual number) has been issued. The 1911 manual will contain 2,690 pages of text. The present number is again devoted exclusively to statements of the railways and street railways in the United States, Canada, Mexico, Cuba, Philippines, etc., the statements of industrial corporations having been incorporated in "Poor's Manual of Industrials," of which the second annual number was issued a month ago.

The introduction to the Manual of Railroads for 1911 shows that the total mileage of steam roads in the United States on December 31, 1910, was 242,107 miles, as against 238,356 miles on December 31, 1909, showing an increase of 3,751 miles or 1.57 per cent.

The gross earnings for 1910, as shown below, were $2,804,580,939, compared with $2,513,212,763, showing an increase of $291,368,176, or 11.59 per cent. as against an increase of $106,192,953, or 4.41 per cent. in the preceding year. The net earnings for 1910 were $919,060,312, compared with $852,153,280, showing an increase of $66,907,032, or 7.85 per cent., as against an increase of $134,351,113, or 18.72 per cent. in 1909.

The following table shows the principal earnings of all the steam roads of the United States at the close of 1910 as compared with the close of 1909:

BALANCE SHEET.

	1910.	1909.
Liabilities:		
Capital Stock	$8,380,819,190	$8,030,680,963
Bonded Debt	9,600,634,906	9,118,103,813
Other Bond Obligations	909,396,197	793,497,799
Accrued Liabilities	140,930,223	151,319,542
Miscellaneous Liabilities*	315,003,927	118,567,836
Bills Payable and C't Accounts	1,090,840,210	933,646,991
Sinking Funds, etc	223,413,410	311,448,385
Profit and Loss	1,178,322,713	919,823,188
Total Liabilities	$21,839,360,776	$20,377,088,517
Assets:		
Cost, Railroad and Equipment	$15,586,829,836	$14,514,822,308
Stocks and Bonds Owned	3,518,744,560	3,084,387,008
Real Estate and Other Investments	705,676,806	907,873,063
Cash, Bills Receivable and C't Accounts	1,203,990,029	1,163,176,374
Materials and Supplies	254,774,611	213,124,839
Other Assets†	265,756,886	185,324,625
Sinking Funds	160,965,276	177,859,392
Profit and Loss	142,622,772	130,520,908
Total Assets	$21,839,360,776	$20,377,088,517

*Including in 1910 appropriated surplus and deferred credit items.
†Including 1910 deferred debit items.

INCOME STATEMENT.

	1910.	1909.
Passenger	$640,949,990	$578,243,601
Freight	1,940,335,111	1,720,863,413
Miscellaneous	223,295,838	214,105,749
Total Earnings	$2,804,580,939	$2,513,212,763
Operating Expenses	1,885,520,627	1,661,059,483
Net Earnings	919,060,312	852,153,280
Other Receipts	200,899,127	165,888,557
Total Available Revenue	$1,119,959,439	$1,018,041,837
Deductions:		
Taxes	$107,862,419	$90,790,949
Rentals:		
Interest	32,088,348	34,406,772
Dividends	30,110,624	30,199,751
Miscellaneous	39,778,489	28,633,163
Interest on Bonds	332,144,147	318,755,456
Other Interest	24,634,000	33,919,466
Dividends on Stock	275,289,173	265,162,298
Miscellaneous	106,342,424	108,312,393
Total Deductions	$948,249,624	$910,180,248
Surplus for Year	171,709,815	107,861,589

TRAFFIC STATISTICS.

	1910.	1909.
Passengers Carried	998,735,432	924,421,638
Passenger Miles	32,388,870,444	29,896,142,332
Average Distance per Passenger	32.42 miles	32.34 miles
Average Receipts per Passenger	64.17 cents	62.55 cents
Average Receipts per Passenger Train Mile	113.63 cents	111.36 cents
Tons Carried	1,817,766,030	1,635,215,800
Ton Miles	256,682,126,657	227,198,032,735
Average Haul per Ton	141.21 miles	138.94 miles
Average Receipts per Ton	106.12 cents	105.24 cents

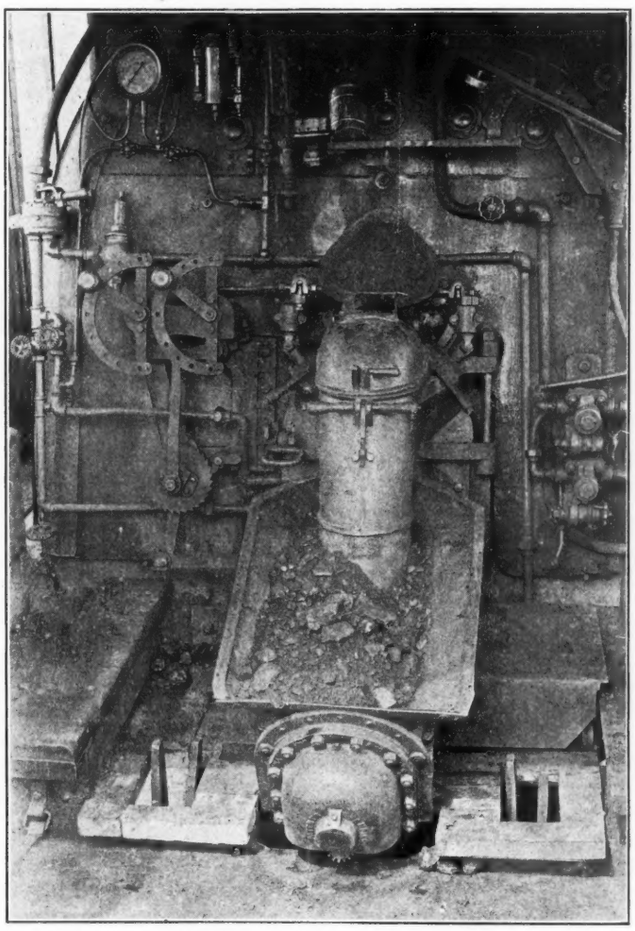
The rolling stock of the railways in recent years consisted of the following:

	1910.	1909.	1908.	1907.
Locomotives	63,030	60,601	61,030	58,301
Cars:				
Passenger	37,985	36,245	35,601	35,321
Baggage, Mail, etc.	13,173	13,449	12,341	11,952
Freight	2,297,620	2,180,324	2,176,321	2,084,214
Total Revenue Cars	2,348,778	2,230,018	2,224,263	2,131,487

The total length of the railways in the United States, including 2d track, 3d track, siding, etc., was 349,870 miles in 1910; as against 343,387 miles in 1909, 333,776 miles in 1908 and 324,033 miles in 1907.

THE HANNA LOCOMOTIVE STOKER.

For the past five years W. T. Hanna of Cincinnati, Ohio, has been developing a mechanical stoker for locomotives. The major portion of his experimenting has been done on the Queen & Crescent Route, where a number of the machines are now in operation. The principle upon which the stoker is constructed is that of a scatter feed, operated by steam jets, with the coal delivered continuously from a hopper into which it is shoveled by

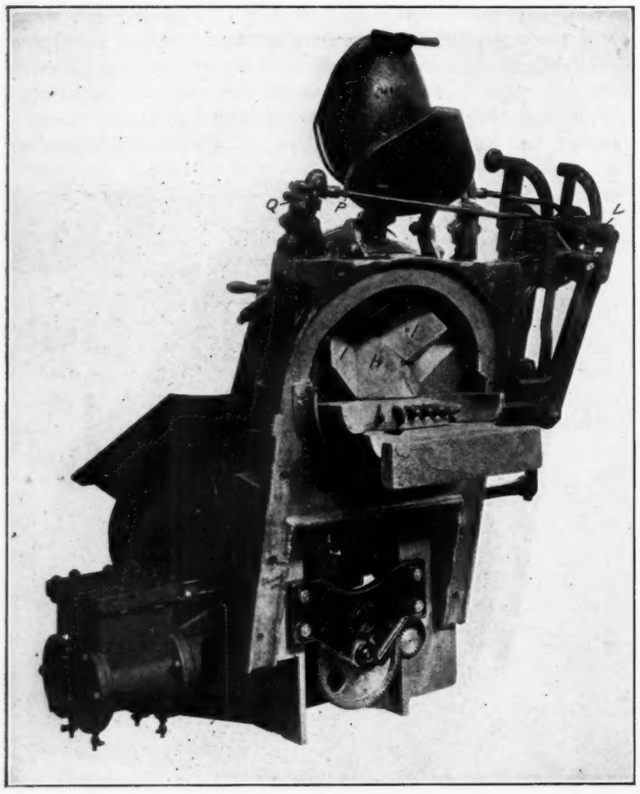


Application of Hanna Locomotive Stoker.

the fireman. The machine takes the coal from the hopper, carries it up and drops it into the firebox, where it is blown out over the fire in an even bed. When in normal working condition there is an even distribution of the coal over the whole firebox, but if there is a change in the rate of combustion at any one point, so that a hole is being burned in the bed, certain wings can be so adjusted as to throw more coal to that one point than elsewhere, and when the threatening difficulty has been remedied, the adjustment can be put back to normal again and the regular operation resumed. Possibilities of adjustment also exist throughout the whole train of events. The speed of the feeding mechanism may be varied to meet extraordinary demands for fuel, either above or below the normal; the velocity of the steam jets can be varied to accord with the character of the coal and the distance from the back head at which it is to be placed; the direction in which the coal is blown can also be changed as already intimated. Finally, in order to avoid the

clogging of the tubes, and the loss of coal, due to the escape of cinders, the fine particles and lumps of coal are handled separately and are sent into the firebox at different velocities.

It will be seen, then, that the machine is a mechanical rather than an automatic stoker. It is mechanical in that it does the work involved in the placing of coal in the firebox, but is not automatic because it requires the attention of the



Front or Firebox Side of Hanna Stoker.

fireman for the filling of the hopper and for making the required adjustments in operation.

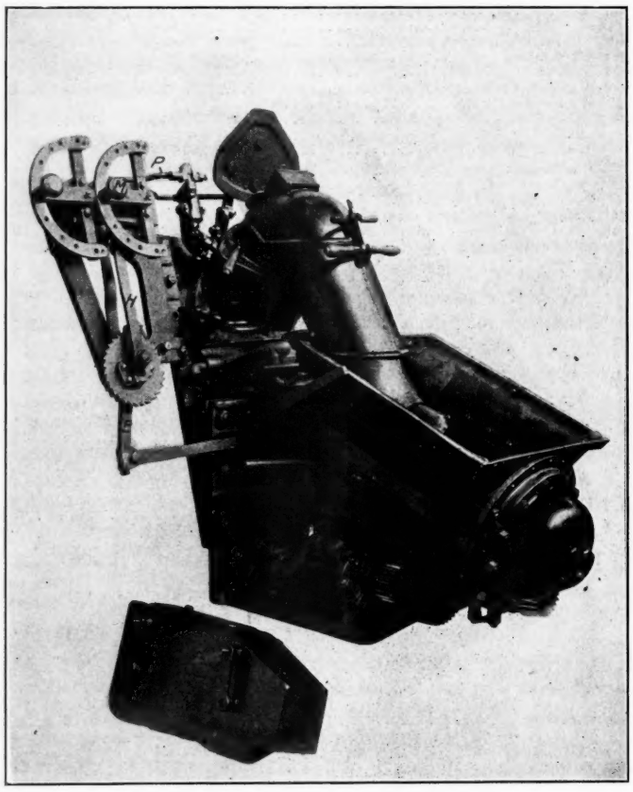
The stoker is located on the back boiler head, where it is bolted to a heavy casting that also forms the door casting. When stripped for hand firing it presents an inclined plane rising from the foot plate to the bottom of the door, and out of the way of the swing of the shovel. When in operation there is a hopper above this into which the coal is shoveled. With the ordinary locomotive the whole mechanism, inclusive of the casing, is above the foot plate.

SERVICE RESULTS.

A recent trip on a locomotive equipped with this stoker demonstrated its capability to maintain steam pressure over a long and hard division; a demonstration that is emphasized if we consider that the fireman who handled it had only made three previous trips with it, and that those three were the only ones he had ever made as a fireman. In short, he was an inexperienced man. The engine was a consolidation locomotive, weighing 199,875 lbs., of which 176,750 lbs. were upon the driving wheels. The cylinders were 22 in. in diameter, with a piston stroke of 30 in. The diameter of the drivers was 56 in. and the firebox measured 6 ft. by 9 ft. The working steam pressure was 210 lbs. and this did not fall below 190 lbs. at any point on the trip; the safety valves opened repeatedly while the engine was working its hardest on the heaviest grades.

The run was made from Oakdale, Tenn., to Danville, Ky., a distance of 137 miles, on the Cincinnati, New Orleans & Texas Pacific Railway. The train, on leaving Oakdale, consisted of 22 loaded cars, weighing 906 tons, including the caboose. The road rises on a gradient of 10.6 ft. per mile for about 5 miles. For the next 3 miles it is 26.4 ft. to the mile, and, for the next 5 miles it is 60.6 ft. to the mile. The 16 miles to the summit of the 60.6-ft. grade at Lancing was run in 45 minutes. Beyond Lancing there are three sags, each followed by rises of 60.6 ft. per mile and about 2, 4 and 1 mile long, respectively, ending at Rugby, 17 miles beyond Lancing. At Glenmary, located at the foot of the last-named grade, there was a meeting stop and a total delay of 26 minutes. This point, 15 miles from Lancing, was reached in 55 minutes, and the run up the 2 miles of 60.6-ft. grade to Rugby was made from a standing start in 11 minutes. From New River to the top of the grade, there is a continuous rise of 60.6 and 52.8 ft. to the mile for about 7 miles and this was covered in the same way.

During the whole of the climb up these hills the engineer paid no attention whatever to the steam as far as the application of the injector was concerned. One injector was started and was worked without shutting off until Glenmary was reached, a distance of 28 miles, and requiring 1 hour 40 minutes to cover. In the meantime, one injector was insufficient to hold up the water while the engine was working so heavily and the second injector was started and worked as occasion demanded. This was done seven times in that period, the time of operation ranging from one to four minutes each. In no case was there any diminution of steam pressure, and on several occasions the



Side View of Hanna Locomotive Stoker.

second injector was put on solely to prevent the safety valves from opening.

This is a fair example of the work done during the whole of the run. At Oneida, just beyond the summit, and 44 miles from Oakdale, the tonnage was increased to 1,138, and at Somerset, 93 miles from Oakdale, it was raised to 1,200 tons. On leaving Somerset there is a grade of 52.8 ft. to the mile for 6 miles; this was run with the maximum tonnage in 35 minutes.

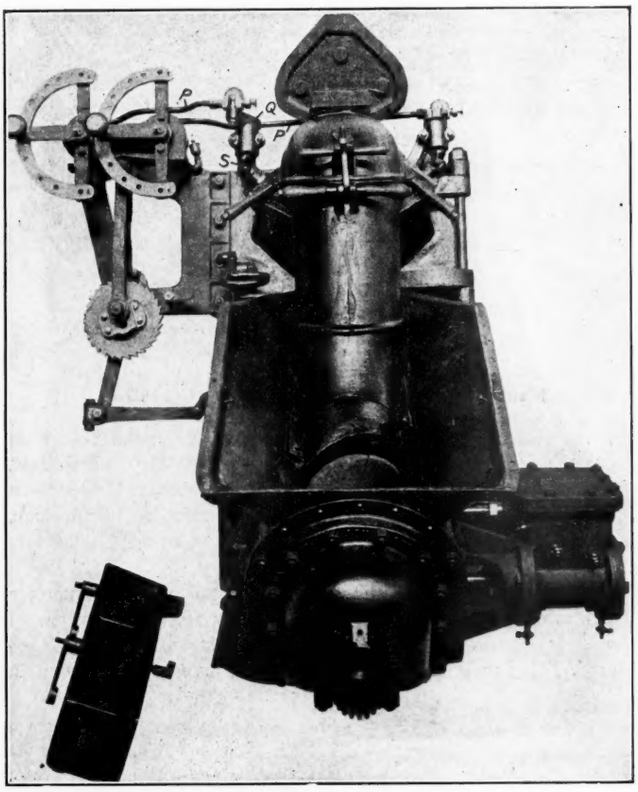
These may be taken as samples of the performance throughout the run, and the statement made as to the use of the injector also holds. In no instance was there any pretense of swapping

steam for water, even when the engine was working its heaviest. One injector was kept on all of the time during which the engine was at work, and the second was started whenever it was required without the necessity of considering as to whether the steam pressure would permit it or not.

On leaving Oakdale, the tender was filled with a mixture of nut and slack coal, of which the following is an approximate analysis:

Fixed carbon	56.0 per cent.
Volatile matter	38.5 per cent.
Ash	5.5 per cent.
Total	100.0 per cent.
British thermal units per pound	13,320

This coal is especially suited for stoker work. It is fine, free from lumps and spreads smoothly over the entire grate. It was used until Somerset was reached, a distance of 93 miles. During that portion of the run, the grates were not touched or the hook used, and the bed was smooth and flat; the wing adjustment was not changed between Oakdale and Danville.

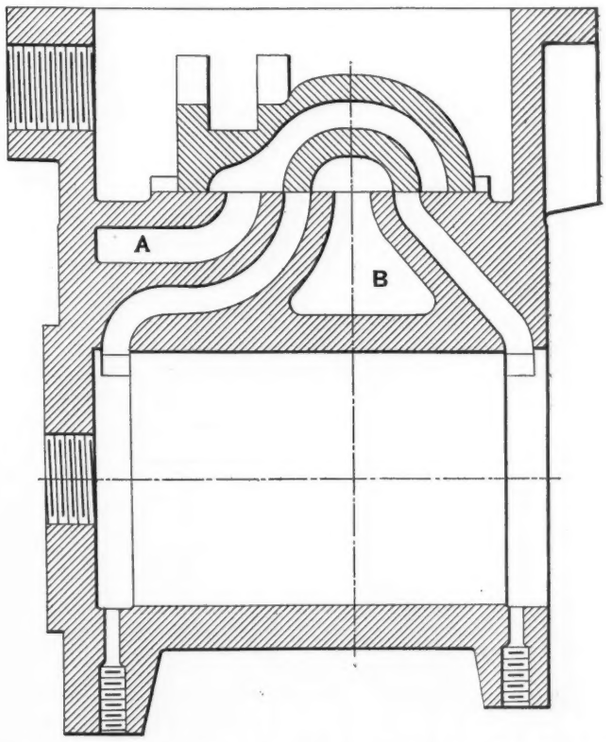


Top and Rear View of Hanna Locomotive Stoker.

At Somerset, three tons more of coal were taken on. The first two tons was of the same character as that taken on at Oakdale. The third and last ton contained a good deal of lump; and, as this was the last to be put on the tender, it was the first to go into the firebox. The effect was noticable immediately. The lumps dropped near the back sheet, and by the time Waynesburg, 19 miles from Somerset, was reached, the grates had been shaken three times and the fire hooked four times; after which, with the consumption of the lumps, the trouble disappeared and the fire was not touched again until Danville was reached. It is merely a practical demonstration of the desirability, if not of the necessity, of using a fine coal with a scatter type of stoker.

As to the smoke, it ranged between Nos. 2 and 3 of the Ringelmann charts, rarely going higher than 3, and frequently dropping well below 2. The firebox of the locomotive was a plain one without a brick arch and having only one opening for the admission of air above the fire, and this was kept closed.

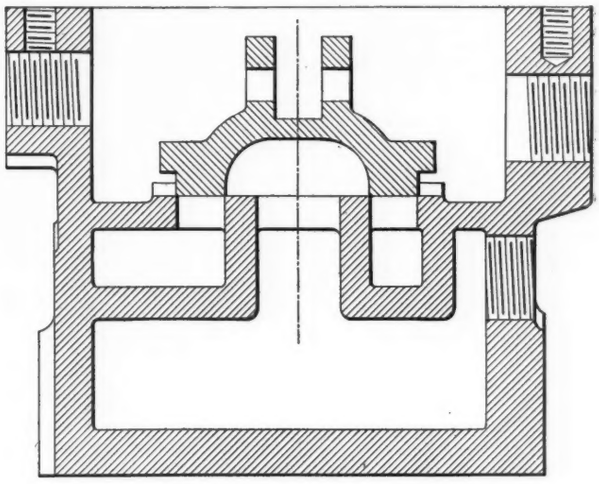
On the hills and where the engine was working the stoker was kept in action sending a constant stream of coal into the firebox at a speed varying with the demands for steam, but always in sufficient quantities to meet these demands and prevent



Section Through Engine Cylinder and Valve; Hanna Locomotive Stoker.

a fall in pressure. The stoker was started and stopped 31 times on the trip, its period of continuous action varying from 1 to 83 minutes. On the easy and undulating portions of the road the stoppages were quite frequent.

As for the work of the fireman, it was done, as has been stated, by an untrained man, and with apparent physical ease. He



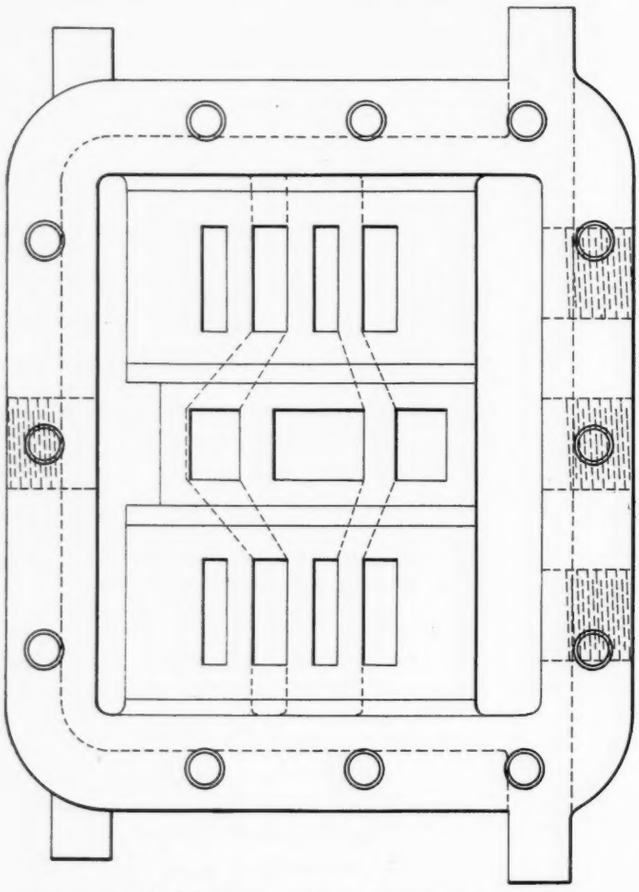
Reversing Valve; Hanna Locomotive Stoker.

was busy, but at no time was he driven in the slightest, nor did he have any difficulty in maintaining the steam pressure. The total elapsed time from Oakdale to Danville was 7 hours and 57 minutes, with an actual running time of 6 hours and 32 minutes for the 137 miles, or at a speed of almost 21 miles an

hour. Water was taken five times, and the total coal burned was between 14 and 15 tons.

CONSTRUCTION AND OPERATION.

Stoker Engine.—The motor for the moving parts is a small two-cylinder engine, having cylinders 4 in. in diameter with a piston stroke of 5 in. The engine is reversible and the cranks are set at right angles to each other. The main valves for the engine are made line and line, both inside and out; that is, they have no lap, and so take steam and exhaust it for the full length of the stroke. The reversing is accomplished by means of a reversing valve that changes the main valve from outside to inside admission. The main valve is of the double-ported type as shown in one of the engravings, and steam is admitted to it through the port *A* or through what is ordinarily the exhaust passage *B*, according to the position of the reverse valve. It is

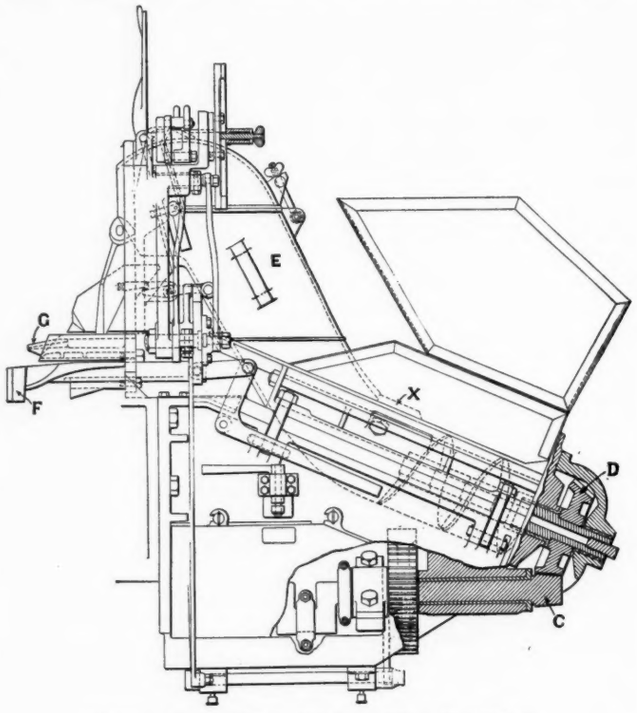


Valve Seat of Engine on Hanna Locomotive Stoker.

evident, therefore, that the main valve is made into an inside or outside admission valve and the engine is run in opposite directions according to this position.

Under ordinary conditions, with the steam reduced to 110 lbs. pressure, the engine runs at about 450 revolutions per minute. A pinion of 15 teeth on the engine shaft meshes with one of 53 teeth on an intermediate or back gear shaft, and this in turn carries a bevel pinion *C* with 14 teeth that meshes with a gear *D*, 46 teeth, on the shaft of a worm, by which the coal is fed from the hopper to the firebox. The engine is placed low and just above the foot plate; the gearing extends back from this point and the worm is on an incline rising to the front. The worm is formed of cast iron sectional segments that can be readily removed and replaced in case of breakage. It has a diameter of 8 in. and a pitch of 6 in.; there are five sections which give it a total length of 15 in. With the engine operating at 450 revolutions per minute, and with gears of the above ratio, the worm turns at the rate of about 39 revolutions per minute. If the coal runs 44 cu. ft. to the ton this drive will deliver, allowing for slip of coal and the space occupied by the worm, about 8 tons of coal per hour, although by speeding the engine a delivery of 11 tons per hour has been effected on a test.

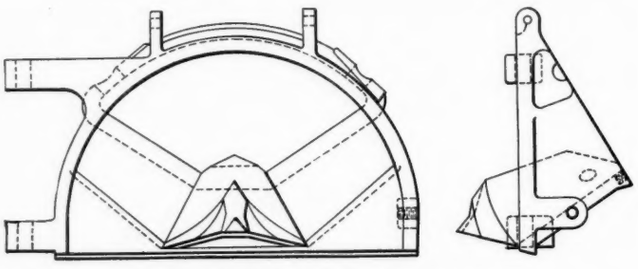
Operation of Stoker.—The coal is shoveled into the hopper, set above the worm, and so long as there is any coal there a con-



Hanna Locomotive Stoker; Side Elevation.

tinuous stream is being fed into the neck or pipe *E* that rises from the front end of the worm and extends into the firebox. The amount delivered per unit of time is, therefore, dependent upon the speed of the engine, regulated again by the fireman, who must use his judgment as to the amount of coal he puts in the hopper.

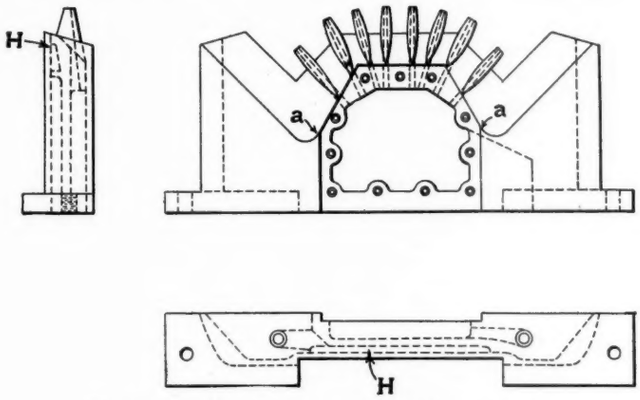
As the coal overflows into the firebox it drops down upon a distributing plate *F* that projects inwardly from the bottom of the door opening, and above which the steam nozzles *G* are placed. There are eight of these nozzles, arranged as shown in



Door of Hanna Locomotive Stoker.

the engraving, and covering a sweep of 90 degrees. The holes in the nozzles are ⅛ in. in diameter and they extend back to the upper chamber of the casting, of which they form a part. Immediately beneath these nozzles is a long slot *H*, extending along the face of the casting and down on the beveled edges to the points *aa*. This slot has a width of 1/16 in. on the issuing or outside and ⅛ in. where it opens into the bottom pocket in the casting. The steam admitted to these upper and lower pockets is wire-drawn, so that it has a pressure of 60 lbs. per sq. in. in the former and 40 lbs. in the latter, with the result that there is a corresponding variation in the velocity of the jets issuing from the nozzles and the slot.

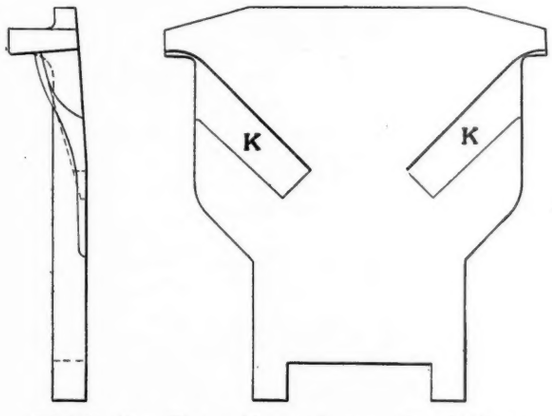
The coal as it drops to the distributing plate is of all grades of coarseness and fineness. The coarse pieces drop on the nozzles, slide along the latter and as they fall off in front, are caught by the issuing jet of high velocity and are thrown to the front of the firebox. At the same time the fine particles sift down between the nozzles and are caught by the steam issuing from the slot at a lower velocity and are not thrown so far out. There is a double advantage in this. The fine coal is not only kept to the back end of the firebox, but also away from the tubes.



Steam Nozzles; Hanna Locomotive Stoker.

A special arrangement is provided to take care of the back end, and especially of the back corners. As the coal drops down it strikes a ridge plate *H*, so-called from the ridge running up its center, and which is clearly shown in the view of the stoker from the front. The primary purpose of the ridge is to divide the stream into two parts, one to either side of the firebox. Moving up and down the sides of this ridge, one on each side, are wings that throw the coal up or down. Immediately in front of the wings the distributing plate has two grooves, *K-K*, cut in its upper surface. The coal as it is blown out by the low-pressure jet, issuing from the slotted nozzle, strikes the face of this groove and is deflected out to the sides and down to the back corners of the firebox.

It is, however, necessary that there should be a sweeping motion to the stream of coal, just as in sprinkling a lawn the



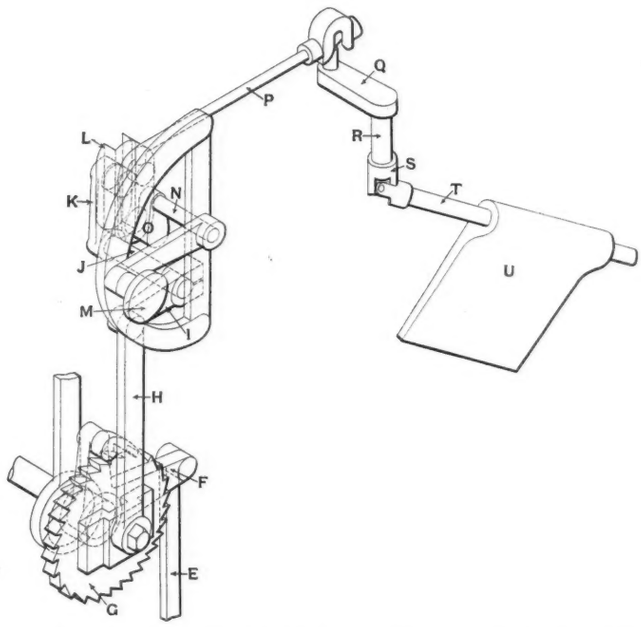
Distributing Plate; Hanna Locomotive Stoker.

nozzle is given a sweeping motion. Here the nozzles are stationary, and this sweeping action can only be obtained by varying the direction of motion of the approaching stream of coal. This is done by giving the wings an up and down motion along the sides of the ridge of the ridge plate.

In the isometric sketch of the distributing mechanism, the wings, *U*, are pivoted at the back near the top of the ridge, and at such an angle that their motion is parallel to its slope. Under ordinary working conditions these plates move continually up and down the sides of the ridge, but may be fixed at any point, if it is desired that a constant stream of coal shall be delivered into some one place. Or it is possible to so adjust their motion that they will make a partial movement down from the top and back, or up from the bottom and back.

The mechanism by which this is accomplished is shown in the isometric drawing. It shows the train of operation by which the motion of the wings is regulated and which constitutes the crux of the successful operation of the machine. The motion is as follows: An eccentric on the back gear shaft imparts a reciprocating motion to an eccentric rod, which is attached at its lower end to the end of an arm, which is keyed to a shaft beneath the engine. At the other end of the shaft is a second arm, from the end of which the connecting rod *E* conveys an oscillating motion to the bell-crank *F*, which carries a pawl upon the end of its vertical arm. This pawl, by its reciprocating motion, gives an intermittent rotation to the ratchet wheel *G*, which has 30 teeth. As the speed of the back gear is a little more than 127.3 revolutions per minute, that of the ratchet wheels becomes a little more than 4.2.

The connection *H* is given an adjustable reciprocating motion by being attached to a slot in the ratchet and so communicates



Isometric View of Distributing Mechanism; Hanna Locomotive Stoker.

an oscillating motion to the arm *I*, which through the shaft *J*, gives a corresponding horizontal motion to the upper arm *K*. This arm carries a pin fitting in a slot of a link, *L*. This link is pivoted on an arm, *O*, that is turned by the handle *M* and shaft *N*, so that the pivotal point of *O* may be carried through 180 degrees. It is evident that if the slotted link is held vertical it will be given the maximum horizontal motion by the movement of the arm *K*.

Attached to the outer end of the link is a connection, *P*, reaching to the end of the arm *Q* that is keyed to the vertical shaft *R*. At the lower end of this shaft is a universal coupling, *S*, between it and the shaft *T*, to which the wing *U* is keyed. Hence, when the link *L* is turned to its vertical position the maximum motion is given to the wing *U* and it travels up and down the full height of the side of the ridge. When the link is turned to its horizontal position the wing has no motion whatever, but stands either at the top or bottom of the ridges, according to the position of the link. To hold the plate at any other point along the face of the ridge, the pawl on the arm *F* is lifted out of contact with the teeth of the ratchet wheel, and the latter is turned by hand to bring the wings to the desired position. There are, of

course, two of these trains of mechanism, one for each wing.

If the stoker should be accidentally crippled in any way it can be readily disconnected and hand firing be used to complete the run. To do this the throat or delivery pipe is taken out and the shield above it is allowed to drop down to cover the hole through which the coal is delivered to the firebox. The hopper is lifted off and the four swing bolts that hold the upper part of the casing in place are turned back, and the case is taken away. This leaves the door free to swing back and the front clear for the motion of the fireman's scoop.

It will be seen from the drawings that the stoker is provided with a door against which it sets, and which is operable like any other door as soon as the upper parts of the stoker are removed to clear it.

From a constructional standpoint, then, the stoker provides for its own removal in case it fails and for the immediate use of the scoop for hand firing. While in service it provides for taking the coal from the hopper in which the fireman has placed it, and putting it in any one part of the firebox where it may be required, or scattering it evenly over the whole surface of the bed.

The steam required to do this work is that required to operate two 4-in. by 5-in. cylinders, running at a speed of 450 revolutions per minute, and that escaping from eight nozzles of ⅛-in. diameter each, and a 1/16-in. slot, the total discharge area of which is ½ sq. in., working under pressures of 60 lbs. and 40 lbs. per sq. in. for the nozzles and slot respectively.

To provide for the proper sizing of the coal a hood is set over the conveyor, which terminates in a knife edge, *X*. This shears off the lumps that may be carried against it and causes a smooth delivery to be made to the throat pipe.

The whole weight of the stoker and overhang is carried by the head of the boiler, to which a heavy boiler plate is bolted. The total weight of the stoker is about 1,600 lbs., to which 300 lbs. must be added for the coal that may be in the hopper.

DISASTROUS WRECK AT BRIDGEPORT, CONN.

In the derailment of the eastbound Federal Express on the New York, New Haven & Hartford, 1½ miles west of Bridgeport, on Tuesday, July 11, at 3:32 a. m., the engineman, the fireman and 11 passengers were killed and the conductor, one brakeman and 40 or more passengers were injured. The derailment was due to excessive speed through a No. 10 crossover; and of the train of one engine and nine cars, every vehicle was wrecked except the two or three rear cars, which were sleepers. About 100 ft. east of the facing point switch of the crossover was a bridge crossing a street, and the tender and first three or four cars were badly crushed, as they were forced against the farthest abutment of this bridge.

The train was 1 hour and 20 minutes late and was running at high speed, believed to have been 60 miles an hour, on track No. 2. It was to stop at Bridgeport, and therefore was to be turned to track No. 4 at this point. The engineman and fireman having been killed, it is impossible to say why the speed of the train was not properly reduced. The engineman was a freight runner of several years' experience, and had had experience in running this passenger train before. He had been on duty Monday till 3 p. m., then went home and was called at 10 p. m. to report at midnight for this run. His wife says that he slept, but just how long does not appear.

An officer of the road gives the following particulars:

Both home and distant signals were disregarded. The time table rule prescribes a speed of fifteen miles an hour over this crossover. The distant signal is about 2,200 ft. in the rear of the home signal. The crossover, a No. 10, was recently renewed, with no change in location. The rails and frogs remained intact without serious damage, the engine jumping the rails at the second frog, or as it was entering track No. 4. The signals, both home and distant, and the crossover, are in the same location as they have been for not less than ten years. The four tracks are all on tangent at the point of the crossover, but the distant signal is on a slight curve. The engineer has been in the service of the company fourteen years, and for the last seven years an engineer running both passenger and freight trains on this section of this division, driving both steam and electric locomotives between New Haven and New York and Harlem River and New Haven. During the last three weeks he has pulled fourteen passenger trains in this same district, and on June 25 ran the Federal Express both east and westbound. He has been thoroughly familiar with this district for the past seven years. The movement of trains from an inner to an outer track or vice versa is a frequent occurrence with both passenger and freight. [All crossovers being suitably signaled.]

CONVENTION OF THE AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.

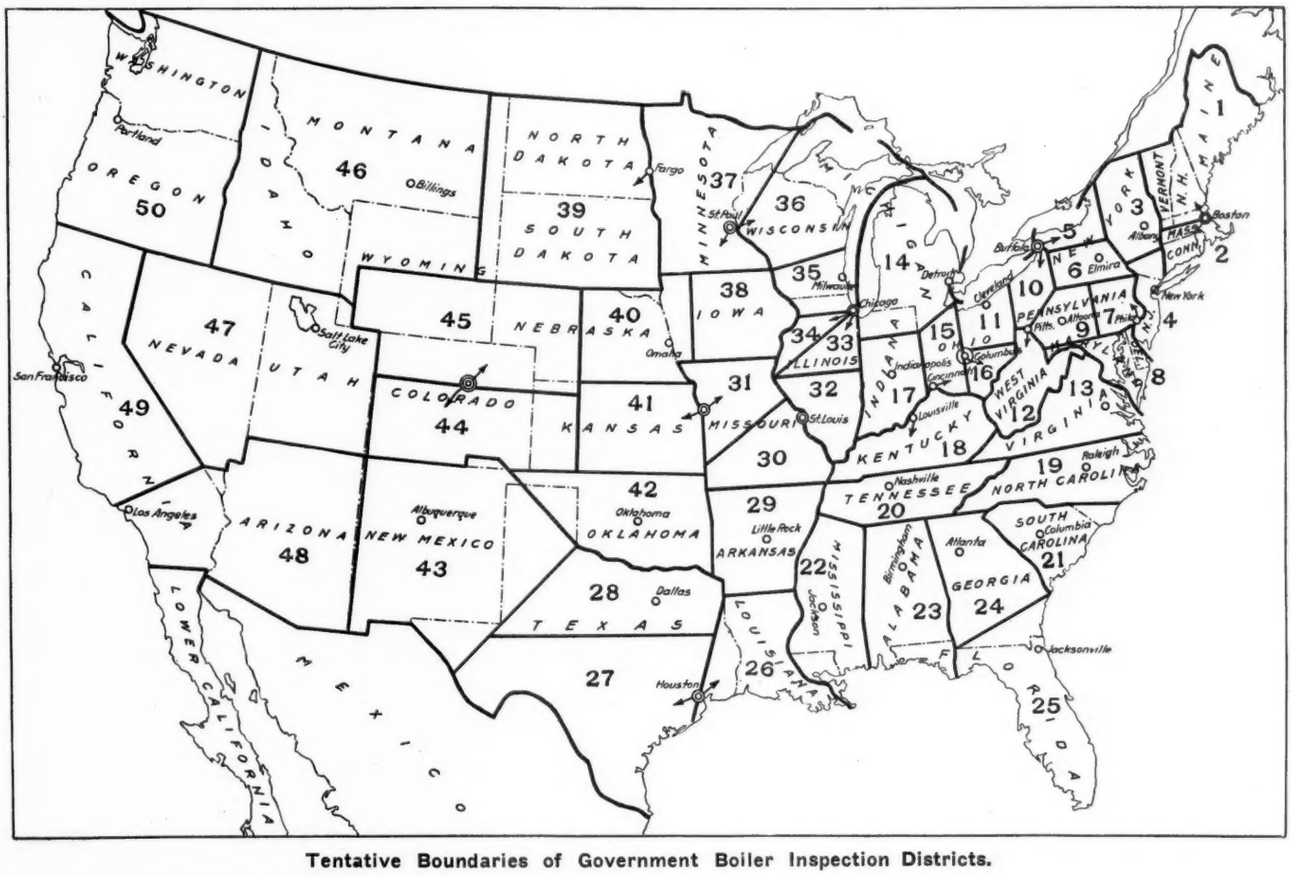
The third annual convention of the American Railway Tool Foremen's Association was opened at the Wellington hotel, Chicago, Tuesday, July 11, with a much larger attendance than last year, forty-six members being registered. M. H. Bray, N. Y., N. H. & H., presided. C. A. Seley, mechanical engineer Rock Island lines, made an address of welcome. He emphasized the importance of striving to improve the efficiency of the tool room in every detail. Tuesday morning two papers were presented, one on the Equipment of Railway Tool Rooms, by B. Hendrickson, Chicago & North Western, Chicago, and the other on the Economical Use and Care of Grinding Wheels, by H. E. Blackburn, Erie, Drunmore, Pa. On Wednesday morning there was a discussion on Standardization of Tool Steel, opened by Henry Otto, Atchison, Topeka & Santa Fe, Topeka, Kans. The following papers were also presented: Pneumatic Tools and Appliances, by A. M. Roberts, Bessemer & Lake Erie, Greenwood, Pa.; Pneumatic Flue Cutters, by J. T. Fuhrman, Great Northern, St. Paul, Minn.; Economical Manufacture of Tools for Boiler Shop Use, Gust Gstoettner, Chicago, Milwaukee & St. Paul, West Milwaukee.

James W. Kelly, first vice-president of the International Master Boilermakers' Association and boilermaker foreman of the Chicago & North Western, Chicago, made an address in which he told how the tool room foreman could co-operate with the boilermaker foreman in greatly improving the efficiency of that department. Wednesday afternoon session papers were presented on Making Dies for Forging Machines, by J. Martin, C. C. C. & St. L., and Making of Drills, by G. F. Linck, Houston & Texas Central, Houston, Tex. At the final session on Thursday morning a paper on Standardizing of Tools in Tool Rooms was presented by E. J. McKernan, supervisor of tools, A. & S. F., and also a paper on the Templet as an Aid to Facilitate Accuracy and Despatch in Locomotive Repairs, by F. E. Lugger, C. C. C. & St. L., Delaware, Ohio. At annual meeting of the Supply Association of the American Railway Tool Foremen's Association, held in the parlors of the Wellington hotel, Chicago, Wednesday, Secretary Mills reported large increase this year in the attendance of supply manufacturers and in the number of exhibitors. Affairs of association were reported in good shape and the following officers were re-elected for the coming year: President, W. H. Dangel; Vice President and Treasurer, E. C. Cook; Secretary, H. L. Mills. The exhibits were shown in a large room adjoining convention hall. Among the concerns making exhibits were the following: American Specialty Company, Chicago, "Use-Em-Up" drill sockets, automatic loose pulley oil cups, represented by H. L. Mills, Carborundum Company, Niagara Falls, N. Y.; samples of grinding wheels, literature and blue prints showing tool room grinding wheels and system of standardizing grinding throughout railway shops, represented by R. S. Marvin and C. C. Schumaker; Carpenter Steel Company, Reading, Pa., catalogues, represented by Russell Dale; Celfor Tool Company, Chicago, drills, chucks,

Celfor taper shank twist drills, concave section twist drills, flue cutters, flue sheet cutters, tool holders, lathe tool bits, boring bars and reamers, Celfor flat drills and chucks, represented by J. J. Dale and George S. Houck; Chicago Pneumatic Tool Company, Chicago, improved ball bearing drills, Boyer long stroke chipping hammers, new B K chipping hammers, Keller chipping hammers, Hayes chipping hammers, electric midget drills, improved corner drills, improved compound drills, catalogues, etc., represented by C. E. Walker, T. G. Smallwood, A. E. Conrow and J. O'Connor; Colonial Steel Company, Pittsburgh, Pa., cabinet showing steel in proper and overheated stages of heat treatment, high speed steel broken to show grain, samples of large cuts of steel, booklets, etc., represented by A. H. Ackerman and R. B. Burns; Corona Manufacturing & Supply Company, Boston, Mass., Corona sockets, represented by G. H. Bryant; Crucible Steel Company of America, Pittsburgh, Pa., catalogues and prints Rex A beading tool which has been in service six years, represented by William Stevenson; Diamond Saw & Stamping Works, Buffalo, N. Y., hack saw blades, frames and power hack saks, represented by Geo. L. Morgan; J. Faessler Manufacturing Company, Moberly, Mo., catalogues, represented by G. R. Maupin; Firth Sterling Steel Company, McKeesport, Pa., tool steels, catalogues and circulars, represented by Walter Brown, William Nelson, John J. Coleman and William R. King; Geometric Tool Company, New Haven, Conn., self opening die heads, taper cutting die head, collapsing taps, chaser or died grinders, catalogues, etc., represented by Geo. T. Case; Independent Pneumatic Tool Company, Chicago, latest improved Thor air tools, consisting of hammers, drills, reamers, etc., represented by John D. Hurley, R. T. Scott, G. C. Wilson, Van Robinson and J. J. Keefe; McCrosky Reamer Company, Incorporated, Meadville, Pa., adjustable reamers, quick change chucks and collets expanding mandrels, universal lamp brackets, drill sockets, represented by F. T. Miller; National Machinery Company, Tiffin, Ohio, die sharpener in operation, national open die head, general and special catalogues, represented by H. E. Lott and K. L. Ernst; Joseph T. Ryerson & Sons, Chicago, tool steel, drills, small tools, Gisholt and Prentice tool room equipment, literature, etc., represented by F. L. Carroll, H. B. Kennicott and Paul Harders, Scully Steel & Iron Company, Chicago, boilermakers' tools, consisting of Lucas pneumatic expanders, railway flue cutters, flue hole cutters, staybolt headers, staybolt chucks, flaring tools, wrenches, etc., represented by W. H. Dangel, H. T. Gielow and Geo. A. Cameron; Skinner Chuck Company, New Britain, Conn., independent combination and universal geared scroll lathe chucks, drill chucks, drill press vises, represented by B. F. Damon, Standard Tool Company, Cleveland, Ohio, drills, reamers, milling cutters, chucks, taps, represented by E. W. Thompson.

BOILER INSPECTION DISTRICTS.

J. F. Ensign, chief inspector of locomotive boilers for the United States government, has established his office at Washington, D. C. (1419 F street), and the two assistant chief inspectors are to have their headquarters in the West, one at Columbus, Ohio, and the other at Denver, Colo. The chief inspector has divided the country into fifty districts, and announces that on application he will furnish blanks to make the reports which are required under the rules adopted by the Interstate Commerce Commission for locomotive boiler inspection. The committee of the American Railway Association on relations of railway operation to legislation, has issued a map showing the tentative boundaries of the 50 inspection districts and the essential features of that map are reproduced herewith. It will be seen that three-fifths of the districts are east of the Mississippi river. More than three-fifths of the more than 60,000 engines of the country are east of the Mississippi river, no doubt; but in the western part of the country the size of a district is limited not only by the number of engines, but also by the distance which the inspector must travel from his headquarters to make inspections.



Tentative Boundaries of Government Boiler Inspection Districts.

General News Section.

The Post Office Department has established a new division of the railway mail service and its headquarters will be at Omaha, Neb.

The Central of New Jersey now sends its pay car over all of its lines, both in New Jersey and Pennsylvania, every two weeks.

The educational bureau, which has recently been established by the Illinois Central for the benefit of its employees, had received up to July 8, 394 applications for membership.

In a fire at Palestine, Tex., July 3, the woodwork mill and the upholstering department of the International & Great Northern car shops were completely destroyed; loss $50,000.

The Pennsylvania Company has begun proceedings in Chicago to secure considerable additional land on which to build its proposed new union station and new freight terminal.

The 800 workmen in the shops of the Atchison, Topeka & Santa Fe at San Bernardino, Cal., are now working 12 hours a day, extra work being necessary on account of the recent roundhouse fires at Seligman, Ariz., and Barstow, Cal.

T. H. Curtis, superintendent of machinery of the Louisville & Nashville, has been appointed mechanical engineer of the electrification commission of the Chicago Association of Commerce. He assumed his new duties on July 13, with office in Chicago.

The Intertsate Commerce Commission has issued revised regulations for making monthly reports to the commission of all instances where employees subject to the hours-of-service law have been on duty for a longer period than that named in the act.

Prosecutions for violation of the 16-hour law, regulating the hours of service of trainmen, have been begun by the government in the Federal court at Cincinnati, against the Cleveland, Cincinnati, Chicago & St. Louis and the Cincinnati, Hamilton & Dayton.

The Boston & Albany, the Boston & Maine and the New York, New Haven & Hartford have signified their intention of continuing the demurrage office at Boston which was established a few months ago at the suggestion of the Interstate Commerce Commission.

The Chicago & Northwestern has ordered from the Western Electric Company, telephone selectors to equip five new circuits for train despatching. This road has for several years used telephones for transmitting train orders. The new circuits will aggregate 600 miles in length

The director of Public Health and Charities at Philadelphia has ordered that milk brought into the city at a temperature of over 60 deg. F must not be sold; and at the receiving station of the Philadelphia & Reading one day last week 800 quarts were condemned and poured into the sewer.

The Governor of Connecticut has signed the law, recently passed by the legisature of that State, establishing a public utilities commission. The law provides for a "strong" commission, taking over the powers of the present railway commission and also new powers over other public service corporations.

In order to give to passengers who pay for their transportation the best service possible, President B. L. Winchell, of the St. Louis & San Francisco, has issued instructions to all employees that when they are traveling on passes they shall give precedence as to sleeping-car reservations and parlor-car seats to those who pay for these accomodations.

As a result of the transfer of the mechanical engineering department of the St. Louis & San Francisco from Springfield, Mo., to St. Louis (see item under Elections and Appointments), specifications for new cars and engines for all the Frisco lines will be made in the St. Louis office, and it is the intention to have a testing department and laboratory installed there.

The Chesapeake & Ohio has put on a new train, with an observation car, running each way daily between Chicago and Old Point Comfort, Va. The eastbound train leaves Chicago at 1 p. m., and reaches its destination the next afternoon. The Chesapeake & Ohio has made extensive improvements in the track of its line west of Cincinnati since its acquirement of that line from the old Chicago, Cincinnati & Louisville.

The Agricultural Department, co-operating with officers of the states of Maine, New Hampshire, Vermont, New Jersey and Wisconsin, is to employ patrolmen to watch forests, with a view to preventing fires. The department has for this purpose an appropriation of $200,000 and intends to make agreements with officers of other states, a condition being that the state shall expend an amount equal to that expended by the federal government.

John Kirby, a veteran train caller at the Union station in Springfield, Mass., died on July 3, being overcome by the heat. Mr. Kirby deserves special mention as a train caller who spoke with natural inflections, and who always enunciated clearly, so that the hearer never had occasion to doubt that it was the English language to which he was listening. Mr. Kirby was for many years a freight conductor on the Boston & Albany, but was retired from train service by reason of having lost a leg in an accident.

The passenger trains of the Sandusky division of the Cleveland, Cincinnati, Chicago & St. Louis now run to and from Toledo over the Toledo & Ohio Central from and to Berwick, 46 miles south of Toledo. Previous to July 1, these trains reached Toledo over the line of the Hocking Valley from Carey, which is seven miles further from Toledo than Berwick. The change follows the purchase of the Toledo & Ohio Central by the Lake Shore & Michigan Southern, thus bringing it into the New York Central system.

The Baltimore & Ohio has made an adjustment, taking effect July 1, of rates of pay of enginemen who run the heavier engines put in service on the road during the past year. These rates vary with the class of engine and in some instances the pay is increased 4 and in a few instances 6 per cent., the average increase approximating 2 per cent. The average increase granted the enginemen a year ago was 4.4 per cent., so that with the present increase the average approximates the increase in rates of pay given to other branches of the service.

The Illinois Central is electrifying the second track of the Kensington & Eastern from Kensington, Ill., to State Line. When this road was built the contract with the Chicago, Lake Shore & South Bend, leasing one electrified track to that road, provided for the adding by the Illinois Central of a second electrified track on demand of the C. L. S. & S. B. The line was built with double track, the second track being intended for steam operation. It has not been operated, however, and to meet the present demand for a second electrified track, it is being electrified.

In a letter to the state labor commissioner, Assistant Attorney-General Robertson, of Texas, has given his opinion as to the application of the state law requiring railways to maintain safety appliance inspectors at certain points and under certain conditions. According to his construction, if the total length of a road and branches equals or exceeds 40 miles, such road is subject to the provisions of the act. He is also of the opinion that the law requires an inspector to be stationed at the connection of a branch with a main line as well as at the terminus of the branch line if such places are terminal points of independent trains.

The Chicago & Eastern Illinois has changed its organization from departmental to divisional. The office of general superintendent was created and the office of engineer of maintenance of way was changed to chief engineer. The organization in its new form will be almost purely divisional, master mechanics reporting to the superintendent on mechanical matters affecting transportation and to superintendent of motive power on all other matters, and division engineers reporting to the superintendent on maintenance matters and to the chief engineer on construction and standards. The accounting department was not affected by the change.

The "Elks" of Washington and Oregon, attending their national convention at Atlantic City, N. J., came across the continent in a train of nine steel cars, said to be the first train of that character to make the complete trans-continental journey. The train left the Pacific Coast, July 4, and was run over the Chicago, Milwaukee & St. Paul and the Pennsylvania. There were two steel baggage cars; one steel sleeping car with 14 sections; four steel sleeping cars with 12 sections and a drawing room each; one 9-compartment steel sleeping car and one steel dining car. There was also a tenth car—an observation car, not steel.

Acting under the increased power recently conferred on it by the legislature, the railway commission of Illinois has ordered reductions averaging between 20 and 25 per cent. in express rates to go into effect throughout the state on August 1. The greatest reductions will be in the charges for small packages and for short hauls. The express companies have asked to be heard in regard to the new tariffs and July 19 is the date set for the hearing. Speaking of the express companies' method of making rates and that proposed by the commission, Chairman Berry said: "The companies' rate scale begins with the big packages and is graduated downward. Our scale begins with the small packages and is graduated upward, with a view of equalizing the charges as much as possible." A former attempt on the part of the Illinois commission to make similar reductions was prevented by the federal court, on the ground that the commission did not have jurisdiction, but Chairman Berry believes that with its present powers its orders will be upheld by the courts.

A meeting of interested commercial organizations and trunk manufacturers from various parts of the country was held at the La Salle hotel, Chicago, on July 10, to make formal organized protest against the plan of the railways, beginning January 1, 1912, to refuse to accept as baggage without extra charge trunks any dimension of which exceeds 40 in., to make the extra charge equal to the excess baggage rate for 10 lbs. for each inch in length over 40 in., and to refuse to accept as baggage at all trunks any dimension of which exceeds 70 in. Commercial organizations that use the large size trunks for the samples of their traveling salesmen say that the new rules will impose an undue burden on them and render many of their trunks worthless. Trunk manufacturers make the same complaint about the trunks they would have on their hands, and also say that much of the machinery employed in the manufacture of trunks would be rendered useless. Resolutions declaring the new rule of the carriers unjust and unreasonable were passed at the meeting, and a committee of nine members was appointed to confer with them and seek a compromise. An attempt will be made to have the roads accept 50-in. trunks without extra charge, reduce the excess baggage rates for larger than 50-in. trunks, and postpone any such rule until January 1, 1913. The committee is authorized to file complaint with the Interstate Commerce Commission in case a satisfactory settlement with the roads is not reached. A number of the speakers admitted that the roads were right in seeking to regulate the size of trunks, but said that any rule made by them should be reasonable.

Divisional Accounting on the Rock Island Lines.

The committee on office organization and methods of the Rock Island Lines has presented a report, advising the reinstatement of the divisional accounting system with the addition of district accountants who are to act in a supervisory capacity. The report has been approved and the new organization is to become effective August 1. The organization which has been in force in this department consisted of four district accountants, each of whom had a sufficient force in his office to handle all the accounts on that part of the system assigned to him. The disadvantage of this arrangement was that these district accountants were too far removed from the division organizations, and it was too difficult for them to keep in close touch with work being carried on at remote points. Under the new organization the accountant in the division superintendent's office will have charge of all accounts on that division and will report direct to the comptroller. In issuing instructions, however, the comptroller will deal with district accountants, of which there will be three, one in each general superintendent's office. These men will handle no details, their sole duty being to supervise the work of the division accountants.

Increases in Pay.

Shopmen of the Norfolk & Western announce that the company has increased their pay, to take effect at once, as follows: Machinists advanced 3½ cents an hour; boilermakers 2½ cents an hour; and sheet iron workers 1½ cents an hour.

The Louisville & Nashville has made a general advance of 5 per cent. in the pay of employees in the mechanical department, to take effect August 15.

Officers of the Firemen's Brotherhood announce that the Southern Railway has granted an increase of 10 per cent. in the pay of firemen and hostlers; and also has agreed to limit the number of negro firemen to a certain percentage of the white firemen. It is claimed that this will reduce the number of negroes employed.

Safety on the North Western.

R. C. Richards, chairman of the Central Safety Committee of the Chicago & North Western, reports that in the year ending June 30, 1911, the number of employees killed and injured on that road fell off 17 per cent. as compared with the preceding year, and of passengers killed and injured 28 per cent. The detail figures are:

	July 1, 1910, to June 30, 1911.		July 1, 1909, to June 30, 1910.		Decrease.		Per cent. Decrease.
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	K. & I.
Trainmen	25	2,486	38	3,313	13	827	25.0
Switchmen	13	548	18	652	5	104	16.2
Stationmen	—	587	6	731	6	144	20.3
Trackmen	25	1,517	28	1,744	3	227	12.9
Bridgemen	3	260	3	314	—	54	17.0
Car Repairers and Inspectors	5	274	3	281	*2	7	.02
Shop and R. H. men.	7	1,213	4	1,286	*3	73	.05
Other employees	12	250	7	308	*5	58	16.8
Total employees	90	7,135	107	8,629	17	1,494	17.2
Passengers	14	663	11	928	*3	265	27.9
Other persons	198	587	235	606	37	19	6.6
Total	302	8,385	353	10,163	51	1,778	17.3

* Increase.

The International Steel Association.

At the session in Brussels, Belgium, held last week, 160 delegates, representing the steel interests of all the steel-producing countries in Europe and America, voted to form an international association. Judge E. H. Gary, chairman of the executive committee of the United States Steel Corporation, was chairman of the congress. It was his plan that the delegates adopted. In his address to the delegates, Judge Gary said: "There should be established and continuously maintained a business friendship, which compels one to feel the same concern for his neighbor that he has for himself, which is no less a principle than the golden rule applied to business. Is it possible? If it is, it will be certain to pay." Later, Judge Gary said, in part: "The questions of regulation of prices, distribution of territory or attempting the circumvention of the tariff laws, have no more part in the congress than a bar association formed by attorneys controls the individual actions of its members or regulates the fees they may charge. I can use no better comparison than to liken the functions of the International Association of Steel Men to a bar association. Its purposes are of the same order and its powers are not greater. The association will do great good for the labor world and especially for employers and employees relations. A standard will be set for dealing with workmen and determining how they shall best be housed and control the sanitary conditions under which they will work. Again, this congress has accomplished a wonderful thing in effecting an arrangement to standardize steel products of the world. World standard sizes and specifications will do away with the thousand and one petty annoyances and expenses in the steel business."

International Mercantile Marine.

The gross earnings of this company for the fiscal year ended December 31, 1910, amounted to $38,073,596, as compared with $33,953,208 in 1909. Operating and general expenses were slightly more in 1910 than in 1909, as were also fixed charges. After the payment of these accounts, there was a surplus last year of $4,849,581 as against $1,182,335. The balance sheet

shows cash on hand of $1,575,203 and total current assets of $5,362,000. The company has current liabilities amounting to $5,329,733, of which $3,604,460 are accounts payable. In addition, there are loans, bills payable and foreign bankers' overdrafts of $3,976,467.

The number of passenger vessels now in the various services of the International Mercantile Marine is 124, to which will be added six steamers now building. Of these vessels, including those under construction, one is a training ship, 24 steamers are under 5,000 tons gross, 64 steamers between 5,000 and 10,000 tons gross, 32 steamers between 10,000 and 15,000 tons gross, three steamers between 15,000 and 20,000 tons gross, four steamers between 20,000 and 30,000 tons gross, and two steamers about 45,000 tons gross. The two largest steamers in the world are owned by this company, the Olympic, which was launched in October, 1910, and made her first voyage from Southampton, June 14, 1911, and the Titanic, her sister ship, which was launched May 31, 1911, and will be placed in the New York-Southampton service early in 1912.

President Ismay, in his comments on the annual report of the company, says that the transatlantic passenger service showed a material increase in the first and second-class movement in 1910, both east and westbound. The outlook for the present year is not quite so satisfactory, and on account of the curtailment in large development and construction work in the United States, immigration is not as large now as last year. During the first half of 1910 the freight situation was anything but satisfactory; during the latter part of the year freight conditions improved, and as this condition still obtains, the prospects are more encouraging.

Metallic Tail End Markers.

The New York Central & Hudson River, as well as the Pennsylvania, now runs trains without the familiar green flags at the tail end. The rule substituting the tail lamp for the flag as a daylight marker is now in force throughout the company's lines, for both passenger and freight trains, suggesting possibly a glut in the green bunting market. The lamp serves as a marker simply by its shape, the color being the same as before and having in the day time no significance. The Central has also made a change in the night indications of the markers, substituting yellow lights for green. So far as tail lights are concerned, the train signals will thus be no longer inconsistent with fixed signals. The signals, both daylight and night, on the front ends of engines to indicate that another section of the train is to follow, will continue to be green.

American Society of Engineer Draftsmen.

The regular monthly meeting of the American Society of Engineer Draftsmen will be held in the Engineering Societies' building, New York, July 20. A paper on The Development of the Automatic Machine will be read by C. A. Clark, M. E., Toledo, Ohio. Walter M. Smyth, 116 Nassau street, New York, is secretary.

MEETINGS AND CONVENTIONS.

The following list gives names of secretaries, dates of next or regular meetings, and places of meeting.

Air Brake Association.—F. M. Nellis, 53 State St., Boston, Mass.

American Association of Demurrage Officers.—A. G. Thomason, Scranton, Pa.

American Association of General Passenger and Ticket Agents.—C. M. Burt, Boston, Mass.; next meeting, St. Paul, Minn., Sept. 19, 1911.

American Association of Freight Agents.—R. O. Wells, East St. Louis, Ill.

American Association of Railroad Superintendents.—O. G. Fetter, Carew building, Cincinnati, Ohio; 3d Friday of March and September.

American Electric Railway Association.—H. C. Donecker, 29 W. 39th St., New York; October 9-13, Atlantic City, N. J.

American Railway Association.—W. F. Allen, 75 Church St., New York; November 15, Chicago.

American Railway Bridge and Building Association.—C. A. Lichty, C. & N. W., Chicago; Oct. 17-19, 1911, St. Louis, Mo.

American Railway Engineering Association.—E. H. Fritch, Monadnock Block, Chicago; annual convention, March 19-21, 1912, Chicago.

American Railway Master Mechanics' Association.—J. W. Taylor, Old Colony building, Chicago.

American Railway Tool Foremen's Association.—O. T. Harroun, Bloomington, Ill.

American Society for Testing Materials.—Prof. E. Marburg, University of Pennsylvania, Philadelphia, Pa.

American Society of Civil Engineers.—C. W. Hunt, 220 W. 57th St., New York; 1st and 3d Wed., except June and August, New York.

American Society of Engineering Contractors.—D. J. Haner, 13 Park Row, New York; 3d Tuesday of each month, New York.

American Society of Mechanical Engineers.—Calvin W. Rice, 29 W. 39th St., New York.

Association of American Railway Accounting Officers.—C. G. Phillips, 143 Dearborn St., Chicago.

Association of Railway Claim Agents.—J. R. McSherry, C. & E. I., Chicago; annual convention, May 22, 1912, Los Angeles, Cal.

Association of Railway Electrical Engineers.—Jos. A. Andreucetti, C. & N. W. Ry., Chicago.

Association of Railway Telegraph Superintendents.—P. W. Drew, 135 Adams St., Chicago.

Association of Transportation and Car Accounting Officers.—G. P. Conard, 75 Church St., New York; December 12-13, Louisville, Ky.

Canadian Railway Club.—James Powell, Grand Trunk Ry., Montreal, Que.; 1st Tuesday in month, except June, July and August, Montreal.

Canadian Society of Civil Engineers.—Clement H. McLead, 413 Dorchester St., Montreal, Que.; Thursdays, Montreal.

Car Foremen's Association of Chicago.—Aaron Kline, 841 North 50th Court, Chicago; 2d Monday in month, Chicago.

Central Railway Club.—H. D. Vought, 95 Liberty St., New York; 2d Thurs. in Jan. and 2d Fri. in March, May, Sept., Nov., Buffalo, N. Y.

Civil Engineers' Society of St. Paul.—D. F. Jurgensen, 116 Winter St., St. Paul, Minn.; 2d Monday, except June, July and Aug., St. Paul.

Engineers' Society of Pennsylvania.—E. R. Dasher, Box 704, Harrisburg, Pa.; 1st Monday after 2d Saturday, Harrisburg, Pa.

Engineers' Society of Western Pennsylvania.—E. K. Hiles, 803 Fulton building, Pittsburgh; 1st and 3d Tuesday, Pittsburgh, Pa.

Freight Claim Association.—Warren P. Taylor, Richmond, Va.; annual, Buffalo, N. Y.

General Superintendents' Association of Chicago.—E. S. Koller, 226 W. Adams St., Chicago; Wed. preceding 3d Thurs., Chicago.

International Railway Congress.—Executive Committee, rue de Louvain, 11 Brussels; 1915, Berlin.

International Railway Fuel Association.—D. B. Sebastian, La Salle St. Station, Chicago.

International Railway General Foremen's Association.—L. H. Bryan, D. & I. R. Ry., Two Harbors, Minn.; July 25-27, Chicago.

International Railroad Master Blacksmiths' Association.—A. L. Woodworth, Lima, Ohio; annual, Aug. 15, Toledo, Ohio.

Iowa Railway Club.—W. B. Harrison, Union Station, Des Moines, Ia.; 2d Friday in month, except July and August, Des Moines.

Master Boiler Makers' Association.—Harry D. Vought, 95 Liberty St., New York.

Master Car Builders' Association.—J. W. Taylor, Old Colony building, Chicago.

Master Car and Locomotive Painters' Association, of United States and Canada.—A. P. Dane, B. & M., Reading, Mass.; Sept. 12-15, 1911, Atlantic City, N. J.

New England Railroad Club.—G. H. Frazier, 10 Oliver St., Boston, Mass.; 2d Tuesday in month, except June, July, Aug. and Sept., Boston.

New York Railroad Club.—H. D. Vought, 95 Liberty St., New York; 3d Friday in month, except June, July and August, New York.

Northern Railway Club.—C. L. Kennedy, C., M. & St. P., Duluth, Minn.; 4th Saturday, Duluth.

Omaha Railway Club.—H. H. Maulick, Barker Block, Omaha, Neb.; second Wednesday.

Railroad Club of Kansas City.—C. Manlove, 1008 Walnut St., Kansas City, Mo.; 3d Friday in month, Kansas City.

Railway Club of Pittsburgh.—C. W. Alleman, P. & L. E., Pittsburgh, Pa.; 4th Friday in month, except June, July and August, Pittsburgh.

Railway Industrial Association.—G. L. Stewart, St. L. S. W. Ry., St. Louis, Mo.; annual, May 12, 1912, Kansas City, Mo.

Railway Signal Association.—C. C. Rosenberg, Bethlehem, Pa.; annual, Oct. 10, Colorado Springs, Colo.

Railway Storekeepers' Association.—J. P. Murphy, Box C, Collinwood, Ohio.

Richmond Railroad Club.—F. O. Robinson, Richmond, Va.; 2d Monday, except June, July and August.

Roadmasters' and Maintenance of Way Association.—Walter E. Emery, P. & P. U. Ry., Peoria, Ill.; September 12-15, St. Louis, Mo.

St. Louis Railway Club.—B. W. Frauenthal, Union Station, St. Louis, Mo.; 2d Friday in month, except June, July and Aug., St. Louis.

Society of Railway Financial Officers.—C. Nyquist, La Salle St. Station, Chicago; Sept. 12-14, St. Paul, Minn.

Southern Association of Car Service Officers.—E. W. Sandwich, A. & W. P. Ry., Montgomery, Ala.; annual, October 20, Atlanta, Ga.

Southern & Southwestern Railway Club.—A. J. Merrill, Grant bldg., Atlanta, Ga.; 3d Thurs., Jan., March, May, July, Sept., Nov., Atlanta.

Toledo Transportation Club.—J. G. Macomber, Woolson Spice Co., Toledo, Ohio; 1st Saturday, Toledo.

Traffic Club of Chicago.—Guy S. McCabe, La Salle Hotel, Chicago; meetings monthly, Chicago.

Traffic Club of New York.—C. A. Swope, 290 Broadway, New York; last Tuesday in month, except June, July and August, New York.

Traffic Club of Pittsburgh.—T. J. Walters, Oliver building, Pittsburgh, Pa.; meetings monthly, Pittsburgh.

Train Despatchers' Association of America.—J. F. Mackie, 7042 Stewart Ave., Chicago; annual, June 18, 1912, Louisville, Ky.

Transportation Club of Buffalo.—J. M. Sells, Buffalo; first Saturday after first Wednesday.

Transportation Club of Detroit.—W. R. Hurley, L. S. & M. S., Detroit, Mich.; meetings monthly.

Traveling Engineers' Association.—W. O. Thompson, N. Y. C. & H. R., East Buffalo, N. Y.; annual, August 29-September 1, Chicago.

Western Canada Railway Club.—W. H. Rosevear, P. O. Box 1707, Winnipeg, Man.; 2d Monday, except June, July and August, Winnipeg.

Western Railway Club.—J. W. Taylor, Old Colony building, Chicago; 3d Tuesday of each month, except June, July and August.

Western Society of Engineers.—J. H. Warder, 1735 Monadnock Block, Chicago; 1st Wednesday in month except July and August, Chicago.

Wood Preservers' Association.—F. J. Angier, First National Bank bldg., Chicago.

Traffic News.

The Chesapeake & Ohio will operate a solid through train to Richmond and Old Point Comfort over the newly acquired Chicago-Cincinnati line, beginning Monday.

Up to the 4th of July the farmers of the Imperial Valley in southern California had shipped by the Southern Pacific, twelve hundred and fifty carloads of cantaloupes.

In the four months ending June 30, the Canadian Pacific carried westward from the Atlantic Seaboard 110,000 immigrants, of whom 85 per cent. were natives of the British Isles. In 1909 the total carried was 46,000 and in 1910 about 95,000.

The Judson Freight Forwarding Company, 342 Whitehall building, New York City, has been appointed contracting and forwarding freight agent of the Pacific Mail Steamship Company on freight traffic between the Atlantic seaboard and the Pacific coast via Panama.

The Pennsylvania Railroad announces that its St. Louis line, the Vandalia, has opened a new freight station at Main street, Second street and Cass avenue, St. Louis, with a capacity of 60 cars. Hitherto the company's principal freight station for St. Louis has been in East St. Louis, Ill., across the river.

The Agricultural Department at Washington reports that in the year ending June 30, 1910, 379,290 persons attended the lectures and exhibitions given in farmers' instruction trains, run by the railways, 52 leading railways taking part in these enterprises. They used 239 cars and spent more than $90,000 in the service.

The Southern Pacific's agricultural demonstration train, which has been run in connection with professors from the University of California, giving lectures, has completed its third annual tour of the state and reports an attendance of visitors aggregating 76,236, which is considerably larger than the number reported last year.

California, as well as Louisiana, has a health promotion car. This car, in charge of the State Board of Health, was at Los Angeles during the recent convention of the American Medical Association, and since then has been making a tour of the state. It was shown also to the teachers attending the convention of the National Education Association at San Francisco.

The Pennsylvania and the Philadelphia & Reading have issued new passenger tariffs for the suburban district around Philadelphia, making slight advances in certain single fare and round trip tickets, bringing all these up to the basis of 2½ cents a mile for one way tickets and 2 cents a mile for round trip. On the Chestnut Hill branch of the Pennsylvania some of the rates have been abnormally low. Season ticket-rates are not changed.

A committee of the Transcontinental Passenger Association has announced that the fall colonist rates, to be in effect from September 15 to October 15, will be the same as those of the last spring, when the one-way fare to the Pacific coast from Chicago was $33, from St. Louis $32, and from St. Paul and Missouri river points $25. It is expected that the travel under these rates will be even heavier than during the spring colonist period when it was very large. Some of the carriers felt that the service rendered warranted an increase in the rates, and the question was taken up at the recent meeting of the Transcontinental Passenger Association in Salt Lake City.

The Indiana railway commission has set August 3 as the date for a general hearing on express rates in that state. This action is being taken under authority recently conferred on the commission by the general assembly, whereby it has power to make an inquiry into rates on its own initiative instead of waiting for complaint to be made by an interested shipper against some specific rate. An investigation of the express rate question was made by the Indiana commission in 1907, which resulted in an order making reductions of 15 to 20 per cent. in the rates, but the United States district court held that the commission had no jurisdiction and enjoined the order. Now that its powers have been increased, the data gathered at the former inquiry will be used.

General Review of Crop Conditions.

The United States Department of Agriculture gives the following general review of crop conditions:

The month of June was decidedly unfavorable for growing crops in most parts of the United States. The aggregate condition of all crops on July 1 was 10.7 per cent. below the average condition, whereas on June 1 conditions were only 2.8 per cent. under average. A comparison of the condition of various crops on July 1, with their average growing condition on July of recent years (past ten years for most crops) is shown as follows (100 representing average conditions and not normal):

Cotton 110.2, lemons 102.2, oranges 100.5.

Rice 99.0, beans (dry) 98.1, apples 97.6, pears 96.3, grapes 96.1, peanuts 96.0, raspberries 94.9, corn 94.6, cantaloupes 94.4, winter wheat 94.3, sugar cane 94.1, rye 93.6, lima beans 92.3, flax 92.1, watermelons 91.6, tomatoes 90.9, alfalfa 90.8, all wheat 89.6.

Onions 88.9, sweet potatoes 88.3, sorghum 88.0, blackberries 87.9, hemp 86.2, cabbage 85.0, tobacco 84.4, potatoes 84.1, spring wheat 84.1, broom corn 82.2, barley 82.0.

Oats 79.7, timothy 76.1, pasture 75.9, peaches 75.6, hay (all kinds) 74.7, kafir corn 74.6, clover hay 72.2, millet 69.1.

The above figures relate only to relative growing conditions, not taking into account changes in acreage. Taking into account both acreage and condition, indications are that the wheat crop will be 1.4 per cent. larger than the average production of the past five years, corn 4.9 per cent. larger, oats 12.3 per cent less, barley 11.6 per cent. less, potatoes 10.8 per cent. less, tobacco 22.7 per cent. less, flax 10.5 per cent. more, rice 5.8 per cent. more than the average production of the past five years.

The average condition of all crops in the aggregate, by states, on June 1, was approximately as follows, 100 indicating the average (not normal) for recent years on June 1:

Maine 95.8, New Hampshire 94.8, Vermont 93.2, Massachusetts 87.8, Rhode Island 88.2, Connecticut 84.0, New York 91.4, New Jersey 88.9, Pennsylvania 90.7. Average for above divisions 91.0.

Delaware 89.7, Maryland 88.9, Virginia 91.3, West Virginia 85.0, North Carolina 100.3, South Carolina 100.0, Georgia 105.2, Florida 94.3. Average for above division 99.1.

Ohio 94.3, Indiana 81.8, Illinois 92.8, Michigan 100.9, Wisconsin 100.9. Average for above division 92.6.

Minnesota 88.5, Iowa 94.9, Missouri 88.5, North Dakota 100.5, South Dakota 56.3, Nebraska 77.4, Kansas 71.3. Average for above division 82.3.

Kentucky 94.7, Tennessee 97.5, Alabama 107.5, Mississippi 104.7, Louisiana 98.6, Texas 86.0, Oklahoma 61.4, Arkansas 99.5. Average for above division 90.1.

Montana 103.6, Wyoming 97.9, Colorado 85.6, New Mexico 106.1, Arizona 103.7, Utah 97.2, Nevada 102.7, Idaho 106.6, Washington 102.5, Oregon 105.1, California 101.7. Average for above division 101.3 per cent.

Traffic Club of New York.

The Traffic Club of New York will have its annual clam-bake at Witzel's Grove, College Point, L. I., on Saturday, July 22. The steamer to carry the members to College Point will leave Pier No. 10 N. R. at 10 a. m. There will be a baseball game and races. At 2:30 p. m. there will be a clam-bake, after which the members and their guests will sail up the Sound.

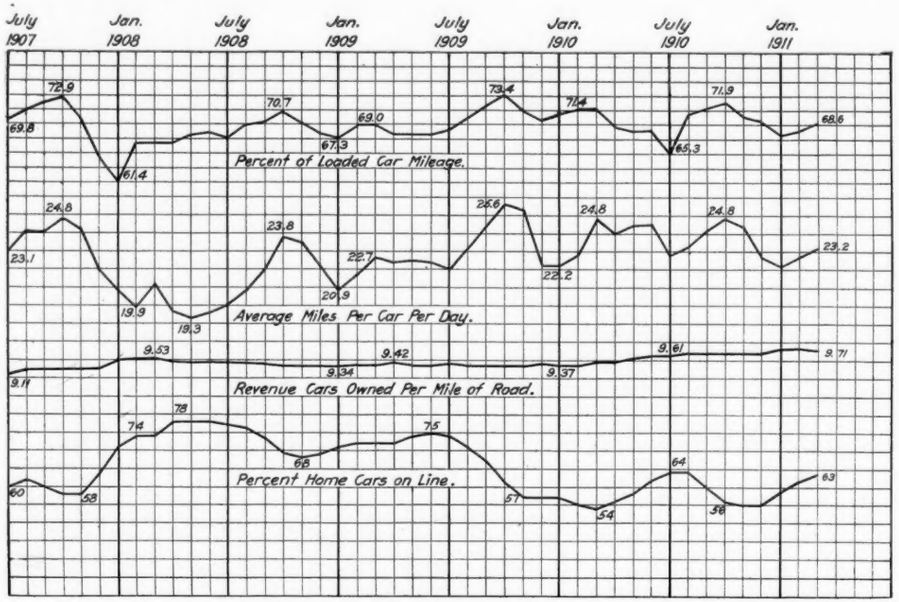
Freight Car Balance and Performance.

Arthur Hale, chairman of the committee on relations between railways of the American Railway Association, in presenting statistical bulletin No. 100, covering car balance and performance for March, 1911, says:

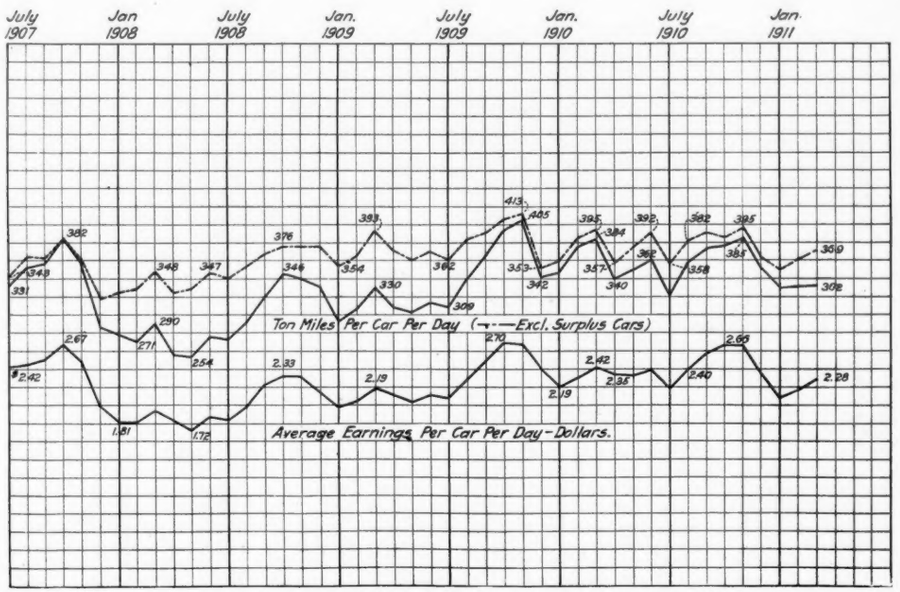
"The averages denote an improvement over February in all the items of performance, excepting the average tons per car and per loaded car, both of which decreased slightly, due probably to a difference in the class of traffic handled in the two months. Miles per car per day increased from 22.6 to 23.2 for all cars. The March average excluding surplus is 25.8. The loaded mileage shows an increase from 67.8 in February to 68.6 in March. This increase, combined with an increase in cars on home lines from 61 per cent. to 63 per cent., indicates that home cars were being utilized for loading to a greater extent than

CAR BALANCE AND PERFORMANCE IN MARCH, 1911.

	New England.	N. Y., N. J., Del., Md., Eastern Pa.	Ohio, Ind., Mich., Western Pa.	Va., W. Va., No. and So. Carolina.	Ky., Tenn., Miss., Ala., Ga., Fla.	Iowa, Ill., Wis., Minn.	Mont., Wyo., Neb., Dakotas.	Kan., Colo., Okla., Mo., Ark.	Texas, La., New Mex.	Ore., Idaho, Nev., Cal., Ariz.	Canadian Lines.	Grand Total.
Revenue freight cars owned	76,827	714,430	221,923	183,252	173,255	377,966	18,533	136,010	30,628	143,375	106,341	2,182,440
Average number of system cars on line	43,198	448,318	146,921	115,465	100,999	265,404	7,617	91,116	23,279	65,588	71,988	1,377,893
Railway-owned cars: Average foreign on line	35,830	242,049	85,893	74,568	61,989	104,902	11,943	48,682	18,561	51,738	35,475	771,621
Total Railway-owned cars on line	79,028	690,367	232,814	190,033	162,988	370,306	19,551	139,798	41,840	117,326	107,463	2,151,514
Excess	2,201	.....	10,891	6,781	.....	.....	1,018	3,788	11,212	.....	1,122	.....
Per cent. of cars on line to total owned:												
Home	56	63	66	63	58	70	41	67	76	46	68	63
Foreign	47	34	39	41	36	28	64	36	61	36	33	35
All railways	103	97	105	104	94	98	105	103	137	82	102	98
Private cars on line	2,875	43,039	11,205	4,536	6,327	13,626	1,320	6,268	3,307	12,085	2,769	107,357
Total, all cars on line	81,903	733,406	244,019	194,569	169,315	383,932	20,871	146,066	45,147	129,411	110,232	2,258,871
Per cent. of cars in shop	4.92	5.52	6.29	5.93	7.28	7.06	5.16	7.50	5.59	5.03	6.66	6.11
No. of freight engines owned	1,107	10,576	2,951	3,133	2,624	6,138	495	2,719	801	2,589	2,163	35,296
Average cars on line per freight engine owned	74	69	83	62	65	63	42	54	56	50	51	64
Total freight-car mileage	44,520,313	526,223,716	150,929,244	132,520,754	126,993,023	272,381,934	22,105,657	89,071,100	34,877,093	123,636,882	99,533,774	1,622,793,490
Average miles per car per day	17.5	23.1	20.0	22.0	24.2	22.9	34.2	20.7	24.9	30.8	29.1	23.2
Per cent. loaded mileage	73.1	65.8	66.6	66.6	71.3	70.9	74.6	68.9	62.7	70.0	75.6	68.6
Ton-miles of freight, including company freight	491,139,933	8,082,907,377	2,059,551,107	1,934,966,768	1,761,822,811	2,700,717,905	332,179,104	1,237,198,706	392,067,165	1,697,466,093	1,375,528,273	22,065,545,242
Average ton-miles, including company freight:												
Per car-mile	11.0	15.4	14.3	14.6	14.0	12.5	15.8	13.9	11.2	13.9	13.8	14.2
Per loaded car-mile	15.1	23.3	21.5	21.9	19.6	18.0	20.8	20.3	17.8	19.9	18.3	20.8
Per car per day	216	356	294	321	339	292	560	287	280	428	402	332
Gross freight earnings	$5,624,139	$48,270,360	$12,748,487	$12,666,004	$12,340,176	$26,811,977	$2,638,362	$10,416,820	$3,295,452	$15,512,759	$9,309,911	$159,634,447
Average daily earnings: Per car owned	$2.36	$2.18	$1.85	$2.23	$2.30	$2.28	$4.59	$2.47	$3.47	$3.49	$2.82	$2.36
Per railway car on line	2.30	2.25	1.77	2.15	2.44	2.33	4.47	2.40	2.54	4.27	2.79	2.39
All cars on line	2.21	2.12	1.69	2.10	2.35	2.25	4.08	2.30	2.35	3.87	2.72	2.28



Car Performance in 1907 to 1911 Inclusive.



Car Loading and Earnings in 1907 to 1911 Inclusive.

during the preceding months. The ton miles per car per day, while showing but a slight improvement (330 to 332), for all cars, increased from 359 for active cars in February to 369 in March. Earnings per car per day averaged $2.28, as compared with $2.17 the previous month. The average excluding surplus cars was $2.58."

INTERSTATE COMMERCE COMMISSION.

Reparation Awarded.

Beekman Lumber Co. v. Louisiana Railway & Navigation Co. et al. Opinion by Chairman Clements:

Damages resulting from misrouting shipments of lumber consigned to consignee, railway. (21 I. C. C., 280.)

Bon Marche v. Central of New Jersey et al. Opinion by the commission.

The charges on a carload of enamel ware from Newark, N. J., to Seattle, Wash., were found to be in excess of what the tariff called for. (21 I. C. C., 195.)

St. Louis Blast Furnace v. Virginian Railway et al. Opinion by Commissioner Meyer:

The sum of the intermediate rates for the transportation of coke in carloads from Deepwater, W. Va., to Carondelet, Mo., was less than the joint rate applied to the traffic. (21 I. C. C., 215.)

Auto Vehicle Co. v. Chicago, Milwaukee & St. Paul et al. Opinion by the commission:

First-class rate for transportation of metal automobile parts in carloads from Milwaukee, Wis., to Los Angeles, Cal., found unreasonable to the extent that it exceeds the fourth-class rate, which is prescribed for the future. (21 I. C. C. 286.)

Robertson Paper Co. v. Boston & Maine et al. Opinion by Commissioner Prouty:

Complaint seeks recovery of damages arising out of a shipment of paper from Bellows Falls, Vt., to Chattanooga, Tenn. The rate applicable to manila wrapping paper in the form in which this paper was shipped should have been applied to this shipment. (21 I. C. C., 254.)

W. O. Kay Co. v. Denver & Rio Grande. Opinion by the commission:

Demurrage and switching charges were assessed on each of two cars in which a single carload shipment had been transferred en route, because point of destination was located on a narrow-gage track. The shipment should be regarded as a one-car shipment for the purpose of assessing demurrage and switching charges. (21 I. C. C., 239.)

Clearfield Lumber Co. et al. v. Chesapeake & Ohio et al. Opinion by Commissioner Prouty:

It appears that in the past the rates on lumber on both the Lexington and Big Sandy divisions of the Chesapeake & Ohio were based on Ashland; but in October, 1909, the lumber rate from Meek, Ky., on the Big Sandy division was reduced 3 cents per 100 lbs., whereas the rates on the Lexington division were unchanged. Subsequently the Chesapeake & Ohio readjusted the rates so as to make the arbitraries the same on both divisions. Such action of that defendant is a practical admission on its part that the present relation of rates is a fair one, and reparation must be allowed on shipments made during the time there was a difference in rates. (21 I. C. C., 211.)

Complaint Dismissed.

J. H. Winterbotham & Sons v. Missouri Pacific et al. Opinion by the commission

Carload rate of 16 cents per 100 lbs. on staves from McNab, Ark., to Cairo, Ill., is not unreasonable. (21 I. C. C., 266.)

Emigrants' Movables.

A. B. Hood v. Great Northern et al. Opinion by the commission:

A mixed carload shipment by a ranchman from Portland, Ore., to Chester, Mont., consisted in part of 36 spools of barbed wire. The wire was entitled to the rate prescribed for emigrants' movables. (21 I. C. C., 246.)

Advanced Rates Reduced.

United States Leather Co. et al v. Southern Railway et al. Opinion by Commissioner Prouty:

Advanced freight rates on products of southern tanneries to northern mines is found unreasonable, and the rate formerly in force is prescribed for two years. (21 I. C. C., 323.)

Allowance in Weight for Melting Ice.

Board of Railroad Commissioners of the State of Kansas v. Adams Express Co. et al. Opinion by Commissioner Harlan:

Present rule of defendants respecting the weights at which shipments of dressed poultry are billed when packed in ice found unreasonable, and defendants ordered to establish a rule providing that shipments of dressed poultry, when packed in ice, shall be billed at 25 per cent. less than their gross weight, but in no case at less than the net weight of the poultry, as invoiced by the shipper, plus the weight of the container. (21 I. C. C. 283.)

Rate Adjustment at Portland, Ore.

Portland Lumber Co. et al v. Oregon-Washington Railroad & Navigation Co. et al. Opinion by Commissioner Prouty:

It appears that lumber from complainants' mills on the Yamhill division of the Southern Pacific Company, at Jefferson street, Portland, Oregon, is not within the switching limits, but pays higher rates than lumber from other Portland mills. Defendants should not be required to embrace complainants' mills within the switching limits of Portland, but that reduced rates should be established from such mills to certain named territories. (21 I. C. C. 292.)

Unlawful Division of Through Rate.

Beekman Lumber Co. v. St. Louis & San Francisco et al. Opinion by Commissioner Meyer:

Carriers, buying what will ultimately become company material, contract with shippers located off their lines and agree that if the vendor will bill the shipment beyond a designated junction point, where their own lines and the lines of the initial carriers meet, that, of the joint through rate, the purchasing carrier will absorb its own division, the shipper assuming only that portion of the joint through rate which accrues to the initial carriers as their division of the rate up to the junction point. This practice results in the application of a portion of a joint rate from the point of origin to point of destination, for the use of a particular shipper which is not published for the benefit of the public at large nor filed with the Interstate Commerce Commission. Contracts providing for such rates held to be in violation of law.

Nothing herein is to be construed as denying to carriers themselves the benefit of divisions of through rates on company material according to lawfully published tariffs. See *In Re Restricted Rates,* 20 I. C. C. 426. (2 I. C. C. 270.)

Confusion in Milling-in-Transit Rule.

Beekman Lumber Co. v. Mississippi Central et al. Opinion by Commissioner Meyer:

This case involves an alleged misrouting, which is really a misunderstanding of the tariffs. This report, while condemning the application of an unpublished division of a joint rate for the benefit of a shipper who sells to a railway, nevertheless estimates the total charges under that joint through rate on the unpublished division accruing to the Mississippi Central. This apparent inconsistency results from the infirmity of the tariff of the Mississippi Central, which allows for the dressing of lumber in transit at Hattiesburg, Miss., and provides that the rough weight into Hattiesburg shall be the basis for connecting-line charges to Hattiesburg, based on their proportion of the through rate, but does not state what that proportion shall be. The divisions themselves vary from and to different points of origin and destination and this is probably the practical reason for their omission. So many tariffs have this infirmity that we are unwilling to condemn this practice without qualification with respect to past transactions, but railways should understand that where a division of a rate is hereafter to be imposed on an incoming transshipment and the balance of the rate is to be imposed on a different outgoing weight, the divisions should be plainly published in the tariff. (21 I. C. C., 276.)

REVENUES AND EXPENSES OF RAILWAYS.

MONTH OF MAY, 1911. (SEE ALSO ISSUE JULY 7.)

Name of road.	Mileage operated at end of period.	Operating revenues			Operating expenses						Net operating revenue (or deficit).	Outside operations, net.	Taxes.	Operating income (or loss).	Increase (or dec.) comp. with last year.
					Maintenance										
		Freight.	Passenger.	Total, inc. misc.	Way and structures.	Of equipment.	Traffic.	Transportation.	General.	Total.					
Alabama Great Southern	309	$233,926	$89,624	$357,936	$53,160	$85,165	$11,021	$110,018	$8,786	$268,150	$89,786	—$1,484	$13,241	$75,061	—$36,431
Atlanta, Birmingham & Atlantic	662	149,394	51,313	217,167	33,044	36,387	15,547	89,323	8,886	183,187	33,980	.....	10,500	23,480	—3,427
Baltimore & Ohio—System	4,434[1]	5,889,898	1,199,220	7,518,036	890,102	1,233,511	149,712	2,545,613	151,285	4,970,223	2,547,813	820	194,922	2,353,711	476,356
Bangor & Aroostook	627[2]	198,369	44,493	257,117	39,991	24,025	2,625	73,824	10,230	150,695	106,422	.....	2,525	103,897	24,590
Bessemer & Lake Erie	204	720,376	24,273	753,694	74,025	147,708	7,524	183,921	7,825	421,003	332,691	.....	6,000	326,691	—65,074
Buffalo, Rochester & Pittsburgh	572	598,670	86,496	706,216	158,015	150,142	9,612	233,685	17,782	569,236	136,980	—777	16,000	120,203	—69,012
Central New England	277	283,547	29,048	327,774	65,592	23,941	950	88,769	3,088	182,340	145,434	106	19,000	126,540	30,270
Central of New Jersey	631[3]	1,731,533	401,959	2,259,846	201,381	305,197	23,843	603,857	42,000	1,176,278	1,083,568	5,925	93,651	995,842	170,391
Central Vermont	411	252,986	79,523	354,849	34,699	50,605	7,532	138,662	15,421	246,919	107,930	594	12,750	95,774	3,684
Chicago & Eastern Illinois	965	689,492	160,559	913,897	82,291	98,988	23,002	341,067	32,756	578,095	335,802	—3,270	28,500	304,032	112,551
Chicago & Erie	270	333,847	57,635	436,231	45,089	86,918	19,103	208,739	9,154	369,003	67,228	.....	16,144	51,084	19,426
Chicago, Indiana & Southern	329	287,414	21,549	315,991	47,287	70,335	7,374	110,142	8,080	243,218	72,773	295	13,900	59,168	8,951
Chicago, Milwaukee & Puget Sound	2,020[4]	982,923	141,244	1,170,731	129,158	155,355	35,939	413,046	18,378	751,876	418,855	—8,523	50,307	360,025	—370,014
Chicago, Milwaukee & St. Paul	7,511	3,474,064	1,060,056	5,040,679	538,051	662,665	98,657	2,028,535	96,779	3,424,687	1,615,992	26,506	226,616	1,415,882	207,501
Chicago, Rock Island & Gulf	471[5]	138,394	48,746	202,591	37,115	20,192	9,635	85,640	7,276	159,858	42,733	—422	9,501	32,810	—23,254
Cincinnati, Hamilton & Dayton	1,014[6]	586,530	131,488	810,203	81,942	141,117	17,069	339,005	19,061	598,194	212,009	.....	32,303	179,706	161,092
Cincinnati, New Orleans & Texas Pacific	337	619,410	121,737	789,373	119,111	169,872	20,197	242,440	17,407	569,027	220,346	—925	21,800	197,621	—133,074
Cleveland, Akron & Columbus	212	147,306	44,786	204,103	37,965	38,403	2,402	62,876	3,941	145,587	58,516	.....	8,500	50,016	—5,855
Colorado & Southern	1,173[7]	484,081	107,150	630,381	59,915	133,070	18,912	196,923	22,571	431,391	198,990	—1,658	24,700	172,632	—36,028
Cumberland Valley	162	171,888	52,242	234,597	64,329	28,643	3,934	76,043	6,563	179,512	55,085	246	5,141	50,190	—44,180
Denver & Rio Grande	2,567[8]	1,419,371	408,685	1,914,805	218,756	335,572	52,214	631,682	48,826	1,287,050	627,755	—2,522	74,600	550,633	—71,253
Duluth & Iron Range	191[9]	662,487	24,706	696,932	96,127	40,139	1,916	120,296	10,122	268,600	428,332	—4,567	26,187	397,578	—229,234
Duluth, Missabe & Northern	316[10]	910,168	42,121	960,656	134,126	87,246	1,682	135,853	11,647	370,554	590,102	3,560	38,766	554,896	—821,253
Duluth, South Shore & Atlantic	612	169,505	79,333	262,615	64,936	28,818	11,902	90,501	6,468	202,625	59,990	1,328	18,000	43,319	—12,922
El Paso & Southwestern Co	901	504,971	79,159	617,865	67,126	80,931	11,628	163,342	21,063	344,090	273,775	—7,430	21,076	245,269	—17,825
Elgin, Joliet & Eastern	831[11]	660,142	2	697,099	67,665	110,929	4,115	204,255	12,865	399,829	297,270	.....	19,600	277,670	59,620
Evansville & Terre Haute	310	112,173	55,724	194,410	26,931	23,669	5,157	69,098	7,429	132,284	62,126	—469	11,295	50,362	—13,042
Florida East Coast	583	167,266	101,780	329,594	48,378	63,509	5,100	110,797	8,410	236,194	93,400	—8	15,500	77,892	—162,930
Fort Worth & Denver City	454	218,540	114,683	352,405	21,485	52,495	6,239	107,710	15,260	203,189	149,216	—1,183	10,522	137,511	7,448
Galveston, Harrisburg & San Antonio	1,338	595,781	238,941	883,595	107,007	125,467	33,229	313,750	38,621	618,074	265,522	—3,451	29,697	232,374	59,552
Georgia	307	154,209	67,778	238,628	29,375	42,757	10,559	108,478	7,133	198,302	40,326	.....	2,100	38,226	8,420
Grand Rapids & Indiana	587	216,545	112,722	358,706	49,968	67,342	12,320	153,339	15,537	298,506	60,200	—169	23,480	36,551	10,886
Gulf, Colorado & Santa Fe	1,537[12]	560,920	226,695	854,112	153,265	145,864	28,220	387,889	29,147	744,385	109,727	.....	25,715	84,012	86,553
Hocking Valley	350	456,662	65,540	567,445	51,911	91,710	8,198	176,156	16,415	344,390	223,055	.....	35,576	187,479	—51,582
Houston & Texas Central	789	284,293	126,428	440,087	71,605	43,204	19,814	201,917	22,407	358,947	81,140	—1,512	17,816	61,812	10,856
Iowa Central	559	210,113	40,219	263,225	40,532	45,950	6,735	112,734	8,993	214,944	48,281	.....	9,591	38,690	14,557
Kanawha & Michigan	175	234,369	29,000	268,721	50,353	46,771	2,853	74,228	7,197	181,402	87,319	—4	7,175	80,140	13,565
Kansas City Southern	827	559,722	136,087	786,314	50,907	155,539	24,288	266,953	28,406	525,993	260,321	.....	34,611	225,710	—61,017
Lake Erie & Western	886	343,338	69,102	435,701	82,072	86,698	13,921	175,831	11,608	370,130	65,571	.....	19,868	45,703	24,099
Long Island	395	300,542	609,364	951,669	111,528	105,146	16,973	391,845	28,409	653,901	297,768	73,297	53,333	317,733	—25,028
Maine Central	932	481,136	232,395	762,842	152,894	108,298	5,696	266,177	20,576	553,641	209,201	1,664	41,311	169,554	—15,947
Minneapolis & St. Louis	1,027	243,100	88,100	359,195	34,365	59,420	9,087	159,881	13,350	276,103	83,092	—41	16,019	67,032	—2,003
Missouri, Kansas & Texas of Texas	1,348	379,023	279,135	707,466	106,449	86,771	22,370	413,836	34,535	663,961	43,505	—1,512	22,475	19,518	83,496
Missouri Pacific	3,921[13]	1,454,593	357,552	2,021,700	535,978	451,652	60,874	882,297	80,648	2,011,449	10,251	—3,404	76,500	—69,653	—402,994
Mobile & Ohio	1,114	727,054	123,919	988,814	116,923	163,025	29,439	341,792	36,323	687,502	301,312	—1,014	25,460	274,838	36,437
Morgan's La. & Tex. R. R. & S. S. Co.	404[14]	255,338	97,463	374,751	66,022	47,901	11,753	138,982	13,727	278,385	96,366	—1,736	18,410	76,220	14,780
Nashville, Chattanooga & St. Louis	1,230	766,063	220,466	1,057,747	167,841	172,515	35,070	407,508	24,708	807,642	250,105	259	25,278	225,086	—34,791
New Orleans & North Eastern	196	215,447	48,347	286,696	29,472	40,330	10,417	104,458	11,122	195,799	90,897	209	9,800	81,306	4,255
New York, Chicago & St. Louis	561	700,010	140,286	877,444	117,503	108,601	51,231	375,484	15,714	668,533	208,911	—1,735	29,600	177,576	—75,607
New York, Ontario & Western	546	649,259	110,858	791,107	85,027	137,926	6,568	278,297	16,577	524,395	266,712	5,065	20,000	241,647	4,850
New York, Philadelphia & Norfolk	112	246,666	31,652	297,097	37,203	58,450	3,759	114,390	11,551	225,352	71,745	.....	7,500	64,245	—37,044
New York, Susquehanna & Western	152	181,898	51,828	261,030	43,601	21,988	1,611	90,503	3,546	161,249	99,781	3,888	11,771	91,898	6,398
Norfolk Southern	608	176,819	64,788	257,811	35,333	33,480	5,030	79,673	12,161	165,677	92,134	—724	5,900	85,510	4,881
Northern Central	468	856,862	184,995	1,102,312	142,483	207,109	14,884	484,377	22,310	871,163	231,149	396	36,740	194,805	66,476
Northwestern Pacific	376	106,694	169,901	296,590	44,356	44,272	3,758	108,180	9,065	209,631	86,959	.....	12,700	74,259	—25,302
Peoria & Eastern	351	187,234	61,955	269,257	52,238	42,555	4,651	112,744	6,384	218,572	50,685	.....	9,500	41,185	—22,680
Philadelphia & Reading	1,022	3,193,353	588,445	3,959,503	433,741	663,174	39,984	1,169,282	64,790	2,370,971	1,588,532	52,376	83,983	1,556,925	—124,153
Rutland	468	172,255	84,295	292,351	38,083	44,772	6,694	118,815	6,927	215,291	77,060	.....	9,221	67,839	5,165
St. Louis, Brownsville & Mexico	501	104,044	50,353	165,617	27,304	11,935	2,982	61,351	8,042	111,614	54,003	.....	4,500	49,503	18,274
St. Louis, Iron Mountain & Southern	3,313[15]	1,574,947	565,143	2,324,158	468,365	429,580	60,539	831,235	82,081	1,871,800	452,358	—6,345	85,550	360,463	—333,467
St. Louis Southwestern	797[16]	414,724	112,295	553,473	53,660	84,069	25,858	150,046	21,065	334,698	218,775	—683	23,989	194,103	20,856
St. Louis Southwestern of Texas	703	182,088	72,027	273,573	54,284	66,010	11,422	124,777	15,423	271,916	1,657	—191	10,000	—8,535	103,650
San Pedro, Los Angeles & Salt Lake	1,105[17]	550,647	256,381	851,916	115,002	142,304	29,651	282,073	17,630	586,660	265,256	—4,859	28,318	232,079	389,910
Southern Pacific Co.	6,187[18]	4,250,494	2,629,239	7,428,523	891,154	752,149	170,767	2,058,899	216,077	4,089,046	3,339,477	—37,083	368,371	2,934,023	—510,760
Spokane, Portland & Seattle	551[19]	263,946	161,410	449,219	51,575	38,016	5,896	86,937	37,700	220,124	229,095	1,601	42,200	188,496	68,854
Texas & New Orleans	458	223,182	81,690	322,279	70,166	62,786	7,978	133,080	9,654	283,664	38,615	5,692	12,257	32,050	—38,727
Toledo & Ohio Central	444	308,825	48,956	373,433	71,749	48,430	7,801	138,611	8,222	274,813	98,620	—1,142	20,813	76,665	—68,392
Toledo, St. Louis & Western	451	262,047	33,487	316,052	24,167	47,412	9,408	120,242	8,388	209,617	106,435	.....	14,550	91,885	—36,874
Union Pacific	3,473[20]	2,777,134	875,733	4,002,884	622,630	344,712	93,107	1,022,937	106,300	2,189,686	1,813,198	—2,914	154,937	1,655,347	—190,994
Vandalia	827	493,021	189,726	771,293	133,212	148,950	20,763	310,417	20,438	633,780	137,513	.....	27,401	110,112	—23,032
Virginian	474[21]	308,957	21,058	342,263	39,073	68,152	4,900	79,017	8,573	199,715	142,548	6,172	16,700	132,020	86,697
Wabash	2,515	1,621,198	574,100	2,384,842	445,007	424,279	77,022	954,800	67,315	1,968,423	416,420	—2,672	79,892	333,856	—5,471
West Jersey & Seashore	353	154,500	327,538	511,229	76,258	58,460	12,095	196,365	9,483	352,661	158,568	—2,770	23,228	132,570	38,384
Wheeling & Lake Erie	457	501,226	47,834	579,446	60,262	93,446	7,200	188,129	15,033	364,070	215,376	3,636	20,794	198,218	21,090
Yazoo & Mississippi Valley	1,372	540,552	208,260	808,851	185,302	111,424	14,697	298,277	25,583	635,283	173,568	—479	36,053	137,036	2,100

REVENUES AND EXPENSES OF RAILWAYS.

ELEVEN MONTHS OF FISCAL YEAR, 1911.

Name of road.	Mileage operated at end of period.	Operating revenues			Operating expenses						Net operating revenue (or deficit).	Outside operations, net.	Taxes.	Operating income (or loss).	Increase (or dec.) comp. with last year.
					Maintenance										
		Freight.	Passenger.	Total, inc. misc.	Way and structures.	Of equipment.	Traffic.	Transportation.	General.	Total.					
Alabama Great Southern	309	$2,749,971	$1,023,483	$4,132,873	$537,281	$967,088	$114,002	$1,276,030	$102,824	$2,997,225	$1,135,648	—$8,027	$148,799	$978,822	—$104,798
Atlanta, Birmingham & Atlantic	662	1,878,445	558,858	2,599,004	327,102	407,768	166,091	967,941	100,798	1,969,700	629,304	.....	120,645	508,659	72,134
Baltimore & Ohio—System	4,434[1]	61,909,814	13,918,541	80,683,294	9,221,884	14,570,649	1,792,404	30,301,528	1,679,623	57,566,088	23,117,206	—122,203	2,385,498	20,609,505	—1,591,936
Bangor & Aroostook	627[2]	2,163,089	574,396	2,896,065	473,960	339,573	35,501	890,641	117,490	1,857,165	1,038,900	.....	25,724	1,013,176	—97,960
Bessemer & Lake Erie	204	6,243,203	322,741	6,664,057	782,692	1,494,946	83,697	1,899,401	120,389	4,381,125	2,282,932	.....	92,209	2,190,723	—934,490
Buffalo, Rochester & Pittsburgh	572	7,103,189	977,498	8,372,249	972,591	1,595,949	120,776	2,713,674	149,612	5,552,602	2,819,647	—1,015	196,000	2,622,632	—25,934
Central New England	277	2,478,613	321,427	2,956,886	548,775	248,183	19,114	860,619	53,247	1,729,938	1,226,948	225	149,000	1,078,173	—24,596
Central of New Jersey	631[3]	17,055,752	4,319,151	22,559,366	2,250,602	3,388,314	332,940	6,505,891	442,563	12,920,310	9,639,056	43,886	956,399	8,726,543	—120,722
Central Vermont	411	2,411,463	950,393	3,626,827	413,682	550,179	78,237	1,657,169	96,357	2,795,624	831,203	5,856	124,617	712,442	—32,771
Chicago & Eastern Illinois	965	8,742,172	1,931,473	11,375,882	1,076,254	1,867,033	259,627	4,200,900	364,143	7,767,957	3,607,925	—14,262	309,629	3,284,034	197,212
Chicago & Erie	270	3,678,768	715,845	4,844,703	515,668	996,558	219,373	2,220,390	106,471	4,058,460	786,243	.....	129,569	656,674	—147,198
Chicago, Indiana & Southern	329	3,046,080	258,066	3,394,233	470,829	685,131	93,984	1,305,206	97,467	2,652,617	741,616	—783	150,193	590,640	—280,823
Chicago, Milwaukee & Puget Sound	2,020[4]	11,523,939	1,364,945	13,252,515	924,677	1,408,945	327,927	4,802,489	161,728	7,625,766	5,626,749	2,119	478,534	5,150,334	—
Chicago, Milwaukee & St. Paul	7,511	41,404,869	12,797,062	59,793,732	7,346,928	8,293,993	1,160,149	25,967,988	1,017,998	43,787,056	16,006,676	168,728	2,436,084	13,739,320	—2,099,760
Chicago, Rock Island & Gulf	471[5]	1,885,496	639,550	2,698,023	402,497	207,098	99,687	991,822	89,266	1,790,370	907,653	—2,951	77,180	827,522	49,955
Cincinnati, Hamilton & Dayton	1,014[6]	6,302,225	1,522,828	8,733,701	744,251	1,563,214	252,729	3,993,913	232,940	6,787,047	1,946,654	.....	340,351	1,606,303	91,825
Cincinnati, New Orleans & Texas Pacific	337	6,467,807	1,530,555	8,442,564	937,008	1,729,415	223,682	2,503,084	197,702	5,590,891	2,851,673	—17,036	238,817	2,595,820	—390,222
Cleveland, Akron & Columbus	212	1,745,174	526,071	2,427,533	435,271	412,796	32,144	806,931	42,840	1,729,982	697,551	.....	96,500	601,051	64,564
Colorado & Southern	1,173[7]	6,499,940	1,425,102	8,397,916	939,905	1,654,901	137,302	2,661,140	244,908	5,638,156	2,759,760	—16,076	271,700	2,471,984	—268,654
Cumberland Valley	162	2,068,881	587,862	2,781,897	439,000	365,293	50,743	892,313	73,409	1,820,758	961,139	2,969	60,590	903,518	—153,240
Denver & Rio Grande	2,567[8]	15,867,929	4,679,516	21,494,138	2,424,622	3,796,533	531,448	7,412,603	543,070	14,708,276	6,785,862	—30,298	788,200	5,967,364	—287,171
Duluth & Iron Range	191[9]	6,108,096	285,749	6,502,451	750,917	589,122	7,085	1,446,936	138,619	2,932,680	3,569,771	—8,879	306,978	3,253,914	—1,497,071
Duluth, Missabe & Northern	316[10]	8,556,400	441,267	9,068,490	1,102,624	1,000,207	18,750	1,503,532	154,892	3,780,005	5,288,485	48,061	443,113	4,893,433	—2,630,869
Duluth, South Shore & Atlantic	612	1,827,217	874,337	2,853,120	448,757	323,758	109,917	1,095,081	75,818	2,053,331	799,789	8,006	195,871	611,924	—122,123
El Paso & Southwestern Co.	901	5,412,754	889,179	6,634,538	821,227	887,386	118,562	1,890,263	246,195	3,963,633	2,670,905	—18,471	210,479	2,441,955	—50,716
Elgin, Joliet & Eastern	831[11]	6,943,964	81	7,354,775	877,692	1,429,302	44,793	2,372,589	177,166	4,901,542	2,453,233	.....	185,000	2,268,233	—712,729
Evansville & Terre Haute	310	1,524,031	659,794	2,426,088	303,970	323,008	60,463	798,556	72,714	1,558,712	867,376	—7,853	107,893	751,630	—687
Florida East Coast	583	1,989,807	1,383,084	3,897,114	472,423	526,035	71,628	1,228,188	87,319	2,385,593	1,511,521	—2,098	158,141	1,351,282	102,849
Fort Worth & Denver City	454	3,037,060	1,540,136	4,811,973	448,334	778,181	65,669	1,509,944	162,404	2,964,533	1,847,440	—13,411	112,609	1,721,420	—168,355
Galveston, Harrisburg & San Antonio	1,338	6,991,420	2,624,345	10,135,500	1,319,140	1,531,599	315,527	3,720,129	323,490	7,209,885	2,925,615	—28,973	329,909	2,566,733	176,031
Georgia	307	2,002,104	813,076	3,000,473	369,934	453,730	115,294	1,231,528	79,281	2,249,767	750,706	.....	22,613	728,093	14,871
Grand Rapids & Indiana	587	2,823,584	1,531,028	4,695,002	609,707	790,736	133,604	2,074,864	162,914	3,771,825	923,177	—1,587	263,014	658,576	—241,886
Gulf, Colorado & Santa Fe	1,537[12]	7,617,952	2,815,291	11,214,287	2,018,124	1,717,291	269,185	4,463,344	351,639	8,819,583	2,394,704	.....	348,390	2,046,314	518,181
Hocking Valley	350	5,376,621	798,632	6,589,161	813,934	1,057,431	96,768	2,152,697	191,386	4,312,216	2,276,945	.....	313,517	1,963,428	—463,033
Houston & Texas Central	789	3,990,323	1,521,231	5,894,292	834,916	699,720	202,481	2,423,080	239,099	4,399,296	1,494,996	—8,031	200,767	1,286,198	37,127
Iowa Central	559	2,588,142	504,394	3,235,196	391,365	537,626	77,509	1,347,885	95,436	2,449,822	785,374	.....	107,289	678,085	61,024
Kanawha & Michigan	175	2,448,127	325,490	2,835,633	316,142	508,180	25,393	791,173	77,543	1,718,431	1,117,202	—69	83,075	1,034,058	373,568
Kansas City Southern	827	6,737,275	1,523,062	9,231,230	895,002	1,266,370	288,947	3,124,280	347,181	5,921,780	3,309,450	.....	327,264	2,982,186	239,575
Lake Erie & Western	886	3,962,179	822,863	5,059,991	837,351	966,884	164,626	1,997,224	135,165	4,101,250	958,741	.....	206,130	752,611	—402,407
Long Island	395	2,882,584	5,803,465	9,124,542	1,087,442	1,256,740	180,029	4,356,624	256,793	7,137,628	1,986,914	626,375	528,087	2,085,202	—563,848
Maine Central	932	5,030,368	2,682,555	8,233,136	1,294,618	1,228,758	78,746	3,149,319	278,825	6,030,266	2,202,870	15,133	416,101	1,801,902	—552,129
Minneapolis & St. Louis	1,027	3,277,315	1,111,227	4,701,128	483,176	624,350	119,302	1,900,053	162,106	3,288,987	1,412,141	—462	210,584	1,201,095	14,123
Missouri, Kansas & Texas of Texas	1,348	5,921,839	3,449,605	9,996,752	1,510,698	785,329	254,772	4,888,734	380,974	7,820,507	2,176,245	—10,167	247,429	1,918,649	463,571
Missouri Pacific	3,921[13]	15,939,407	4,280,577	22,558,409	3,737,082	3,722,998	647,917	10,641,232	779,966	19,529,195	3,029,214	—30,597	904,500	2,094,117	—
Mobile & Ohio	1,114	7,482,813	1,326,060	10,266,269	1,193,236	1,766,185	353,276	3,568,227	381,789	7,262,713	3,003,556	—14,432	276,460	2,712,664	74,517
Morgan's La. & Tex. R. R. & S. S. Co.	404[14]	3,264,525	1,120,684	4,662,482	649,551	564,737	126,175	1,628,079	150,508	3,119,050	1,543,432	—16,016	212,667	1,314,749	11,918
Nashville, Chattanooga & St. Louis	1,230	8,051,041	2,597,442	11,371,864	1,734,233	2,076,002	388,705	4,066,743	271,605	8,537,288	2,834,576	—10,151	257,123	2,567,302	—127,136
New Orleans & North Eastern	196	2,473,129	569,743	3,270,144	325,561	485,623	102,456	1,172,689	126,564	2,212,893	1,057,251	—1,076	98,187	957,988	41,201
New York, Chicago & St. Louis	561	8,403,238	1,444,076	10,226,567	1,132,587	1,330,344	548,140	4,330,356	178,428	7,519,855	2,706,712	—18,994	335,320	2,352,398	—943,602
New York, Ontario & Western	546	6,686,882	1,494,048	8,497,466	998,010	1,358,684	119,732	3,341,180	191,516	6,009,122	2,488,344	—53,107	195,000	2,240,237	47,869
New York, Philadelphia & Norfolk	112	2,466,857	382,068	3,073,778	359,725	535,985	46,745	1,193,217	124,370	2,260,042	813,736	.....	84,150	729,586	—183,388
New York, Susquehanna & Western	152	1,883,073	547,415	2,726,409	303,417	249,229	21,105	995,850	44,817	1,614,418	1,111,991	13,564	129,029	996,526	186,537
Norfolk Southern	608	1,825,127	692,909	2,697,260	307,724	318,855	53,614	840,050	148,719	1,668,962	1,028,298	2,794	65,700	965,392	—
Northern Central	468	9,101,665	2,083,385	11,862,496	1,958,084	2,229,303	179,728	5,540,777	272,703	10,180,595	1,681,901	5,762	371,093	1,316,570	—919,124
Northwestern Pacific	376	1,249,397	1,560,716	3,042,251	542,685	464,724	32,628	1,149,851	101,741	2,291,629	750,622	.....	122,700	627,922	—101,404
Peoria & Eastern	351	2,372,003	658,820	3,266,376	452,509	548,069	65,549	1,394,337	65,883	2,526,347	740,029	.....	105,378	634,651	—210,853
Philadelphia & Reading	1,022	32,455,386	6,408,809	40,675,104	3,579,221	7,498,605	462,500	13,029,458	750,609	25,320,393	15,354,711	287,773	926,088	14,716,396	—1,098,299
Rutland	468	1,724,084	1,044,693	3,130,399	404,301	490,507	78,111	1,237,876	76,943	2,287,738	842,661	.....	113,506	729,155	—45,060
St. Louis, Brownsville & Mexico	501	1,052,726	552,136	1,739,263	441,898	135,960	26,979	635,007	88,268	1,328,112	411,151	.....	52,000	359,151	60,982
St. Louis, Iron Mountain & Southern	3,313[15]	18,319,871	5,691,372	26,089,087	3,786,331	3,545,810	610,040	9,042,900	843,900	17,828,980	8,260,107	—42,749	878,490	7,338,868	—330,812
St. Louis Southwestern	797[16]	5,571,582	1,280,475	7,166,727	766,288	1,128,301	291,638	1,796,673	247,741	4,230,641	2,936,086	—7,180	231,508	2,697,398	147,926
St. Louis Southwestern of Texas	703	2,714,306	925,577	3,874,256	959,380	808,279	119,348	1,718,727	183,881	3,789,615	84,641	—2,275	105,726	—23,360	208,125
San Pedro, Los Angeles & Salt Lake	1,105[17]	4,610,042	2,487,887	7,558,884	1,348,869	1,261,448	342,389	2,805,183	191,073	5,948,962	1,609,922	—54,601	297,711	1,257,610	716,662
Southern Pacific Co.	6,187[18]	48,677,505	29,190,854	83,729,951	10,383,723	10,370,507	1,796,920	22,988,610	2,534,747	48,074,507	35,655,444	127,631	3,238,354	32,544,721	—4,109,898
Spokane, Portland & Seattle	551[19]	2,979,397	1,115,172	4,312,782	502,691	319,564	54,045	1,093,705	136,733	2,106,738	2,206,044	—3,861	387,200	1,814,983	952,237
Texas & New Orleans	458	2,423,803	980,321	3,611,520	665,351	645,286	80,944	1,443,255	105,891	2,940,727	670,793	11,153	135,282	546,664	—246,038
Toledo & Ohio Central	444	3,803,599	584,795	4,606,889	671,066	637,951	75,820	1,596,683	90,272	3,071,792	1,535,097	—1,705	212,003	1,321,389	127,742
Toledo, St. Louis & Western	451	2,823,569	419,935	3,459,912	417,764	505,130	98,384	1,240,682	101,244	2,363,204	1,096,708	.....	156,800	939,908	—193,102
Union Pacific	3,473[20]	33,138,864	10,110,397	47,333,013	5,189,421	5,324,644	1,095,625	12,350,330	1,173,129	25,133,149	22,199,864	—54,431	1,704,004	20,441,429	—1,589,491
Vandalia	827	6,421,127	2,211,629	9,626,156	1,288,835	1,765,719	294,328	3,873,771	218,550	7,441,203	2,184,953	.....	305,294	1,879,659	—30,910
Virginian	474[21]	2,959,652	233,575	3,290,529	375,567	571,826	56,296	878,919	85,356	1,967,964	1,322,565	54,584	166,056	1,211,093	785,731
Wabash	2,515	18,604,964	6,757,496	27,381,390	3,280,911	4,454,150	843,391	11,003,370	822,466	20,404,289	6,977,101	—21,106	840,981	6,115,014	—807,721
West Jersey & Seashore	353	1,674,433	3,565,325	5,582,436	873,065	673,188	163,035	2,333,603	116,038	4,158,929	1,423,507	—53,803	252,776	1,116,928	141,719
Wheeling & Lake Erie	457	5,247,868	557,365	6,210,411	686,905	1,229,661	88,274	2,221,423	152,240	4,378,503	1,831,908	32,304	227,104	1,637,108	—127,628
Yazoo & Mississippi Valley	1,372	6,895,544	2,548,040	10,077,602	1,808,325	1,410,202	164,420	3,225,203	262,866	6,871,016	3,206,586	—3,754	378,204	2,824,628	1,028,587

Mileage operated on May 31, 1910—[1] 4,460 miles; [2] 546 miles; [3] 668 miles; [4] 1,463 miles; [5] 486 miles; [6] 1,036 miles; [7] 1,248 miles; [8] 2,553 miles; [9] 168 miles; [10] 293 miles; [11] 781 miles; [12] 1,518 miles; [13] 3,883 miles; [14] 348 miles; [15] 3,287 miles; [16] 773 miles; [17] 979 miles; [18] 6,076 miles; [19] 420 miles; [20] 3,411 miles; [21] 444 miles. — Indicates Deficits, Losses and Decreases.

Their's Not to Reason Why

Switzer Lumber Co. v. Texas & New Orleans et al. Opinion by Commissioner Meyer:

A carrier is liable for damages resulting from a disregard of a shipper's specific routing instructions, even though it sends the shipment via a route taking a lower rate to the original billed destination. A strict compliance with routing instructions relieves a carrier from liability for misrouting, and it is no part of a carrier's duty to speculate on the reasons which actuated such instructions and to assume that they do not express the shipper's desire. (21 I. C. C., 290.)

Some Expressions of Opinion on Tap Line Railways.

Manufacturers' Railway Company et al. v. St. Louis, Iron Mountain & Southern et al. Opinion by Chairman Clements:

The Manufacturers' Railway, which serves the Anheuser Busch Brewing Company and a number of other industries in south St. Louis, asks that the railways entering St. Louis shall be compelled to make divisions of the rate with it. The commission has had before it on many occasions questions involving terminal carriers, tap lines, etc. In disposing of cases involving these important issues it has been found impossible to lay down any general rule of action. The commission necessarily must consider all the features of each particular case presented and base its conclusions on a careful application of the law to the facts.

The Manufacturers' Railway operates about 20 miles of track, of which 2¼ miles are classed as main track and the remainder as side track, switches and yard track. The company owns and operates four locomotives and employs about 110 men. The majority of the stock of the company is owned by the same interests owning a majority of the stock of the Anheuser Busch Brewing Association. From 1888 to 1908 the Manufacturers' Railway leased its property to the St. Louis, Iron Mountain & Southern, but refused to renew the lease on the ground that the operation by the Iron Mountain was unsatisfactory and inadequate, and this was the universal testimony of all the shippers who were heard. Beginning in 1904, when it was first decided not to re-lease the property, and up to the present time, a large amount has been spent on the extension and improvement of the property. Testimony was introduced to show that only 10 per cent. had been necessary for the purpose of serving the brewery. Two-thirds of the trackage of the Manufacturers' Railway has been built solely for the purpose of serving the public, while the remaining one-third is used in serving both the brewery and the public.

As to the question of whether or not the Manufacturers' Railway is a common carrier, it is not within the authority of the commission to pronounce any railway not to be in fact or in law a common carrier if by the tests and principles of the common law it would be held to be such. The right of such a railway to participate in through routes and joint rates and share in the earnings of such rates with others is a wholly different question and one clearly within the purview of the statute and under the jurisdiction and control of the commission. The commission will not outlaw any common carrier and thus put it out of business or deny its use to the public so long as it is willing to perform its functions. Payment to the Manufacturers' Railway, therefore, of a reasonable portion of the St. Louis rates for the terminal service rendered by it is not unlawful. In view of the peculiar features of this case, it is highly important that the allowance to the Manufacturers' Railway Company and the services rendered by that company to its patrons should be equitably adjusted, and the duty and responsibility rests on railways to closely guard these features in making any allowance or division in order that they shall not make themselves liable for unjust discrimination. The record before the commission does not present a sufficient basis for a satisfactory determination of reasonable division. No order will be entered at the present time.

Commissioner Lane concurring:

I am in agreement with this report to the extent that it decides that the Manufacturers' Railway is, as to certain of its traffic, a common carrier; it is also doubtless a plant facility. The difficulty that we have had in deciding this case, even to the extent that it is decided here, arises out of the fact that the commission has not exercised the power granted to it under the law to separate terminal from transportation charges or require the carriers to do so.

The situation in St. Louis is simply this, so far as it has been revealed herein: The line carriers have combined and established a terminal which includes a great body of tracks, stations, warehouses, industrial spurs, and other terminal facilities. These are availed of by the carriers entering the city on an agreed basis. It is proposed by these lines that this terminal shall be a monopoly and that the rates of freight stated in the tariffs shall include delivery within this terminal. They canceled the allowance to the Anheuser-Busch road, the plant herein, because they feared that a rival company was being developed. So long as the beer people confined themselves strictly to hauling their own cars, or those of affiliated institutions, an allowance was made for delivery or receipt of cars as going to or coming from the brewery plant, which approximated $200,000 a year. This was in reality a cartage allowance, and the railways seemed to have no doubt about their right to make it until by its extensions the Manufacturers' Railway threatened to become a rival. Then came the simultaneous cancellation of these allowances; and while this case has been pending one by one the carriers have given way to the very forceful demands of the brewery people who own the railway, so that immediately after the issuance of this report the old order of things will be re-established. Then the commission will have to take on itself the determination of the question as to what the allowance should be and whether it should be extended to the brewery people who own the railway or not. I cannot but believe that the solution of this question of terminal allowance for industrial delivery can only come when we have separated the line charge from the terminal charge. If a shipper is not to avail himself of the terminal facilities of a main line carrier, it does not seem fair that he should be required to pay the full amount that is paid by one who uses these terminals.

Commissioner Harlan dissenting:

I am unable to concur in the views of the majority.

As is well known many large industries, as a part of the equipment necessary to the economical conduct of their business, have been compelled to install rails in and about their plants and to operate them with their own locomotives. Customarily the cost is charged up directly to the industry. But when the traffic is large enough to induce the regular lines to compete for it the common practice is to incorporate a railway company under the local law, and, in form at least, to commit the operation of the plant tracks and equipment to it. The industry thus puts itself in a position, through its subsidiary company, to receive, under color of right, a switching allowance or a division out of the rate. Ordinarily there is no outside traffic for the subsidiary road to move, but in some cases other industries can be served and some traffic is moved for them. By way of illustration of what is actually done under the pretense of legal authority it may be well to refer to the brewery of the Lemp Brewing Company in the immediate neighborhood of the Anheuser-Busch Brewing Company. It is a large industry, but relatively small when compared with the Busch brewery, its traffic amounting to but 10,000 or 12,000 carloads a year. It is situated on the hills of South St. Louis and the streets leading down to the river front are of an unusually severe grade. To meet the difficulty involved in getting its traffic to and from the regular lines on the water front it has abandoned the use of horses and wagons and has built an inclined track from its plant down the hill. The grade is so severe that a locomotive can not be used; instead there has been devised a powerful drum operated by a stationary engine by means of which, with steel cables, cars are pulled up from and let down to the tracks of the regular carriers. The drum and cables and stationary engine have been incorporated as the Western Cable Railroad Company, and as a matter of fact it actually moves cars up and down the hill for some immediate neighbors of the Lemp Brewing Company at a charge of $2 a car. It is scarcely reasonable to call this contrivance a railroad within the meaning of the act to regulate commerce, but as a matter of fact within the past few days tariffs have been filed by one or two of the regular lines providing an allowance to that company on the theory that it is a railroad and that its track is an addition to the public rail facilities of the city of St. Louis. In the vicinity are other industries. some with a traffic of from 1,000 to 2,000 carloads a year, which is handled back and forth to the lines of the regular carriers by horses and wagons. They get no allowances from the carriers and have to bear their own burdens.

There seems to be a general movement throughout the country to rid interstate transportation of what must be regarded as a

manifest wrong and inequality. This is shown by the recent action of the trunk lines in laying before us a statement of the industries, which, through their subsidiary railway companies, have been receiving allowances and divisions which it is now proposed to cancel. While protests were made by some shippers against this proposed action, it was a notable feature of the conference that the protests were based not on the claim of a right to receive divisions and allowances through their subsidiary railroads but altogether on the theory that the few exceptions proposed by the carriers in their statement did not differ in principle from other cases and that unlawful discriminations would result from the recognition of those cases as exceptions.

The Anheuser-Busch Brewing Association and the Manufacturers' Railway Company are owned in the same general interest. The brewery, as in the case of the Lemp Brewery, is also on the hills of South St. Louis. It covers 35 city blocks, or about 126 acres. Its various malt houses, brew houses, warehouses, shops, and other buildings are very numerous. Its traffic is said to amount to one-thirtieth of the entire inbound and outbound tonnage of the city of St. Louis. During the year preceding the hearing the freight handled for it by its subsidiary railway company approximated 40,000 carloads. There can be no doubt, therefore, and I do not understand that the point is controverted at all, that the various tracks and sidings in and around the various buildings and leading to different parts of the 126 acres are nothing more nor less than a part of the equipment that has been found necessary in the economical management of the brewery, and therefore in every real and just sense of the word is a mere plant facility. (21 I. C. C., 316.)

Conference Rulings.

Before the expiration of two years a delivering line discovered and at once refunded an overcharge; upon demand made by it after the two years had expired a connecting line declined to repay its share on the ground that the statute of limitations had run. In such cases the statute does not run as between carriers. 306.

Overlooking a higher through rate charges were collected on the sum of the intermediate rates. After two years had expired the through rate was reduced to that basis and still later the balance of the through rate legally in effect on the date of the shipment was collected. On presentation of the claim some months later, it is held, that it was barred by the statute, and that the case is controlled by *Blinn Lumber v. Southern Pacific,* (18 I. C. C., 430.) 307.

A railway employee on leave of absence for the purpose of filling a term in a public office, or to engage in other business, is not entitled during such period to free passes either for himself or his family. 308.

Carriers may not disregard the fourth section (long and short haul clause) in order that passenger fares may be stated in multiples of five. 309.

In determining whether the provisions of the fourth section are contravened, mileage, commutation, party rate, and half fares for children should be compared only with fares of the same character. 310.

Under section 22 interstate lines may carry free or at reduced rates property for county authorities. 311.

Terminal companies must file statistical reports as required by the commission. 312.

The law requires the carrier to collect and the party legally responsible to pay the lawfully established rates without deviation therefrom. It follows that it is the duty of carriers to exhaust their legal remedies in order to collect undercharges from the party or parties legally responsible therefor. It is not for the commission, however, to determine in any case which party, consignor or consignee, is legally liable for the undercharge, that being a question determinable only by a court having jurisdiction. 314.

The fourth section does not apply when the more distant point and the intermediate point are in a foreign country; nor when the point of origin and point of destination are both in the United States and the intermediate point is in a foreign country. 318.

A carrier may not lawfully issue free interstate transportation to one not otherwise entitled to it in order to enable him as a witness to attend a proceeding in court unless the carrier is a party thereto or has a direct legal interest in the result. 319.

In arranging for the purchase of a chemical compound to be used in locomotive boilers it was understood that the chemical company would give to the engineers and firemen the necessary instructions for using the compound and that the carrier would furnish passes to an instructor for that purpose: The instructor is not entitled to use free transportation under Conference Ruling No. 208-*b*. 320.

Under a lease in which a nominal rental is reserved, a private person has erected a grain elevator on land belonging to an interstate carrier. This arrangement constitutes an undue preference. 325.

STATE COMMISSIONS.

The Board of Railroad and Warehouse Commissioners of Illinois are to begin on July 19 an inquiry into the rates and practices of express companies under the law which places express companies under the jurisdiction of the commission.

The New York Public Service Commission, Second district, has ordered the surface railways of New York City to give transfers at 151 points where they were discontinued after the dissolution of the Metropolitan Street Railway System and the New York City railways.

The Nevada railway commission, in a case brought by the business men of Reno, has ordered reductions of about 25 per cent. in the class rates of the Nevada-California Railway and the Tonopah & Goldfield. Investigations are also being made by the commission into the passenger rates charged by the Southern Pacific in that state.

After extended hearings on the coal rate questions, the Oklahoma corporation commission on July 5 made a new order, making reductions in the present rates, but placing them on a basis higher than they were on under its previous order, which was recently enjoined by the federal court. The roads are required to file tariffs in accordance with the new order by July 27, the order becoming effective July 31. The new rates will be on a straight mileage basis, and a graduated scale is provided, changing for every 5 miles up to 100 miles and every 10 miles from 100 to 400 miles, and ranging from 25 cents a ton for 5 miles on coal, coke and slack to $2.30 on coal and coke and $1.93 on slack for 400 miles, a lower rate throughout being made for slack.

COURT NEWS.

In the Federal court at Indianapolis, Ind., the Baltimore & Ohio Chicago Terminal Railroad has been fined $1,100 for violation of the safety appliance law.

At Philadelphia, July 6, the Philadelphia & Reading paid to the Federal authorities the sum of $40,219, being the fine and costs imposed on it for illegally cancelling demurrage charges on cars of freight consigned to the Bethlehem Steel Company. The Reading and the Lehigh Valley railways and the steel company have now paid $120,000 in fines imposed by the court in this proceeding.

The Interstate Commerce Commission has appealed to the Supreme Court in the case of its order forbidding railways to make lower rates for the transportation of coal consigned to railway companies than on coal for other parties. The case was carried by the railway to the Commerce court, which took a view opposite to that of the commission and issued an injunction forbidding the enforcement of the order.

The government has begun suit in the United States Circuit Court against the Lehigh Valley Railroad, to test its right to control the Lehigh Valley Coal Company and other coal companies, the contention of the government being that the coal companies, being wholly or substantially owned by the railroad company, are devices for evading the commodities clause of the Interstate Commerce Law. It is charged that the railroad company has compelled the coal company to contract at a loss for coal of other operators, this coal being sold to the railroad company and the loss to the coal company being offset by the excessive profit taken by the railroad company in the transportation of coal, certain coal markets being thereby controlled.

Railway Officers.

ELECTIONS AND APPOINTMENTS.

Executive, Financial and Legal Officers.

B. F. Bush, president of the Missouri Pacific, has been elected also president of the American Refrigerator Transit Company at St. Louis, Mo., succeeding C. S. Clarke, resigned.

C. G. Nelson, formerly special accountant of the St. Louis, Brownsville & Mexico, has been appointed auditor of the New Iberia & Northern, with office at New Iberia, La.

Morris McDonald, vice-president and general manager of the Maine Central, has been elected also vice-president of the Portland Terminal Company; and George W. York, treasurer of the Maine Central, has had his authority extended over the Portland Terminal Company, both with offices at Portland, Me.

William Hough, formerly second assistant auditor of the Pullman Company, is now first assistant auditor, succeeding James F. Bird, deceased. F. L. Simmons, auditor of receipts, succeeded Mr. Hough and L. M. Bradish succeeded Mr. Simmons. George S. Seymour is third assistant auditor, all with offices at Chicago.

Charles P. Crawford, who was recently elected comptroller of the Erie Railroad, with office at New York, as has been announced in these columns, was born at Salamanca, N. Y., and was educated in the common schools. He began railway work on January 1, 1881, as a clerk in the freight office of the Erie at Salamanca, and during the next ten years was consecutively freight clerk, ticket clerk and chief clerk. He was then for a short time contracting agent of the West Shore Fast Freight Line at New York, and returned to the service of the Erie in August, 1893, as traveling auditor. In July, 1899, he was made chief clerk to auditor of disbursements, and from January 1, to June, 1902, was assistant chief clerk to auditor. He was then to April, 1903, chief clerk to auditor, and was subsequently for three months auditor of disbursements of the same road, and on July 15, 1903, he was appointed auditor of the Erie Coal Company. Mr. Crawford was promoted to auditor of the Erie Railroad on January 1, 1904, which position he held at the time he was elected comptroller, as noted above.

Operating Officers.

C. W. Ford has been appointed general superintendent of the Grand Junction & Grand River Valley, with office at Grand Junction, Colo., succeeding J. H. Brinkerhoff, resigned.

J. F. Gannoway, chief despatcher of the Spokane, Portland & Seattle, has been appointed trainmaster and chief despatcher of the Spokane & Inland Empire at Spokane, Wash.

T. A. Downs has been appointed trainmaster of the Illinois Central, with office at Princeton, Ky., succeeding to the duties of L. E. McCabe, assistant superintendent, promoted, and the office of assistant superintendent is abolished.

Michael Lowman, chief despatcher of the Cumberland Valley at Chambersburg, Pa., has been appointed trainmaster, succeeding Thomas B. Kennedy, transferred. C. H. Feldman succeeds Mr. Lowman, both with offices at Chambersburg.

E. M. Wise has been appointed general manager of the Missouri & North Arkansas, with office at Eureka Springs, Ark., and N. J. Groves, trainmaster, has been promoted to assistant superintendent in charge of transportation, with office at Leslie, Ark.

A. W. G. Clark has been appointed trainmaster on the British Columbia and Alberta divisions of the Canadian Pacific, in charge of the section between Laggan, B. C., and Field, including Field terminals, with offices at Field, succeeding A. N. McIntyre, transferred.

Incident to a change in the operating organization of the Pere Marquette, by which the Chicago terminals become a part of the Grand Rapids district, Theo. Ensel, superintendent at Grand Rapids, Mich., has had his jurisdiction extended over them, and the office of superintendent of terminals at Chicago has been abolished. W. A. Hawker has been appointed trainmaster of the Chicago division south of Holland, Mich., including Chicago terminals, La Crosse division and Benton Harbor branch, with office at Benton Harbor, Mich. W. H. Romoser, trainmaster at Grand Rapids, will have charge of the Grand Rapids terminal, the Chicago division as far south as and including Holland, and the Muskegon and Big Rapids divisions. Charles Harsch has been appointed a general agent, with office at Chicago.

Louis Eugene McCabe, whose appointment as superintendent of the Illinois Central at Mattoon, Ill., has been announced in these columns, was born August 12, 1867, at Rochester, Iowa. He received a common school education and began railway work in 1881 as a telegraph operator on the Chicago, Rock Island & Pacific. The next year he went with the Chicago, Milwaukee & St. Paul as a telegraph operator on the Iowa division, where he remained two years, and during 1884 and 1885 held a similar position on the Atchison, Topeka & Santa Fe. From 1886 to 1901 he was a despatcher, having been with the Rock Island, the Santa Fe and the Texas & Pacific. He was made a chief despatcher of the Southern Railway in 1902, and in 1903 went with the Illinois Central, with which road he has been consecutively despatcher, chief despatcher, traveling chief despatcher, trainmaster and assistant superintendent, from which latter position he has recently been advanced to superintendent.

Louis E. McCabe.

Traffic Officers.

J. C. McNamara, traveling passenger agent of the Lake Shore & Michigan Southern at Youngstown, Ohio, has been appointed general baggage agent, with office at Cleveland. Ohio, succeeding J. T. Burrows, retired. W. G. Knittle, general agent in the passenger department at Grand Rapids, Mich., succeeds Mr. McNamara, and his former office has been abolished. W. R. Lynch, general agent in the passenger department at Cleveland, has been appointed traveling passenger agent in that territory.

F. C. Reilly, general freight agent of the Chicago & Eastern Illinois, at Chicago, has had his jurisdiction extended over the St. Louis & San Francisco and other Frisco lines, with office at St. Louis, Mo., succeeding E. K. Voorhees, who has been appointed first assistant general freight agent. A. S. Dodge has been appointed general agent of the traffic department, with office at St. Louis, in charge of special duties relating to the solicitation of traffic which may be assigned to him by Vice-President Biddle.

George H. MacRae, who has been appointed general passenger agent of the Chicago, St. Paul, Minneapolis & Omaha, with office at St. Paul, Minn., as has been announced in these columns, began railway work with the Chicago, St. Paul, Minneapolis & Omaha as a clerk in the auditing department at St. Paul, and in 1890 was made chief clerk in the ticket auditing department. Three years later he was made chief clerk in the general passenger department, and in January, 1897, was appointed assistant general passenger agent, from which position he has just been promoted to general passenger agent, as above.

H. D. Waldron, whose appointment as general passenger agent of the Maine Central, with office at Portland, Me., has been announced in these columns, was born June 16, 1857, at Portland, and was educated in the high school of his native town, graduating in the class of 1876. He began railway work in November, 1877, as a telegraph operator at Brunswick, Me., a busy junction point. Mr. Waldron had previously served between one and two years as commercial operator with the Western Union. During the next three years he was telegraph operator and ticket

agent at Brunswick and at Waterville, two of the Maine Central's busiest points, and in 1880, returned to Portland as chief clerk in the passenger traffic department. He remained in that position until 1890, when the accounts having been transferred to the accounting department, he was appointed auditor of passenger accounts, remaining in that position until June, 1908, when he returned to the passenger traffic department as assistant general passenger agent, which position he held at the time of his recent appointment as general passenger agent.

Engineering and Rolling Stock Officers.

L. L. Ashton has been appointed assistant roadmaster, District 1 of the Canadian Pacific, succeeding J. Todd, resigned.

Thomas B. Kennedy, trainmaster of the Cumberland Valley, has been appointed assistant to engineer, with office at Chambersburg, Pa.

W. J. McKee, master mechanic of the International & Great Northern at Mart, Tex., has been appointed master mechanic of the Texas & Pacific, with office at Gouldsboro, La., succeeding Charles M. Babcock, resigned.

W. B. Ott, assistant engineer motive power of the Pennsylvania Railroad, at Altoona, Pa., has been appointed master mechanic at the Trenton (N. J.) shops, succeeding H. H. Maxfield, transferred. M. J. Davis, assistant master mechanic at Altoona, succeeds Mr. Ott, with office at Altoona.

G. J. Kennedy is now assistant engineer of maintenance of way of the National Railways of Mexico, with office at Mexico City, Mex., and the following are division engineers: M. Ovando, Aguascalientes; W. W. Johnston, Chihuahua; M. F. McNab, Tampico; Isidoro Romo, Mexico City; L. W. Miller, Monclova; R. Fabella, Pueblo; Philo Burkholder, Oaxaca; C. R. Armstrong, Tonala, and F. T. Fulkerson, Tierra Blanca.

The mechanical engineering department of the St. Louis & San Francisco having been transferred from Springfield, Mo., to St. Louis, where it will be in charge of W. C. Nixon, vice-president, and his assistant, W. H. V. Rosing. D. M. Knox, mechanical engineer of the Missouri Pacific at St. Louis, has been appointed mechanical engineer of the St. Louis & San Francisco; and H. P. John, heretofore mechanical engineer at Springfield, has been transferred to St. Louis as chief draftsman.

Richard N. Durborow, whose appointment as general superintendent of motive power of the Pennsylvania Lines east of Pittsburgh, Pa., and Erie, with office at Altoona, has been announced in these columns, entered the service of the Pennsylvania Railroad in February, 1879 as an apprentice in the West Philadelphia shops. In September of the following year he was transferred to Altoona and upon the completion of his apprenticeship he entered the mechanical engineer's department at Altoona. In March, 1890 he was appointed inspector in the West Philadelphia car shops, since which time he has been consecutively, October, 1892, assistant general foreman; November, 1895, acting master mechanic, and March, 1896, master mechanic at West Philadelphia. In May, 1900 he was appointed superintendent of motive power of the Philadelphia, Baltimore & Washington, and in August of the same year was made superintendent of motive power of the Buffalo & Allegheny Valley division. In October, 1901 he was made superintendent of motive power of the Eastern Pennsylvania division, which position he held at the time of his recent appointment as above noted.

R. N. Durborow.

Equipment and Supplies.

LOCOMOTIVE BUILDING.

THE ERIE, mentioned in the *Railway Age Gazette* of June 23 as being in the market for 35 mikado locomotives, 5 Pacific-type locomotives, and 20 switching locomotives, has withdrawn from the market until after August 1.

THE ST. LOUIS NATIONAL STOCK YARDS, reported in the *Railway Age Gazette* of June 30 as having ordered one 60-ton six-wheel switching locomotive from the American Locomotive Company, advises that it has ordered two.

THE SIOUX CITY TERMINAL has ordered 1 six-wheel switching locomotive from the American Locomotive Company. The dimensions of the cylinders will be 19 in. x 24 in., the diameter of the driving wheels will be 50 in. and the total weight in working order will be 114,000 lbs.

CAR BUILDING.

PROCTOR & GAMBLE, Cincinnati, Ohio, are in the market for 100 tank cars.

THE HAVANA CENTRAL, Cuba, is in the market for from 300 to 400 sixty-ton box cars.

THE CANADIAN NORTHERN has ordered 200 box cars from the Canadian Car & Foundry.

THE BUFFALO, ROCHESTER & PITTSBURGH has ordered 3 coaches from the Pullman Company.

THE ANN ARBOR has ordered 450 steel underframe box cars from the Western Car & Foundry Company.

THE BOSTON ELEVATED is said to be making inquiries for 50 steel car bodies. This item is not confirmed.

THE CHICAGO, BURLINGTON & QUINCY has ordered 5 all-steel 60-ft. postal cars from the Standard Steel Car Company.

THE LEHIGH VALLEY has ordered fifteen 60-ft., and ten 70-ft. steel baggage cars from the Standard Steel Car Company.

THE NORFOLK & WESTERN has ordered the specialties for 500 50-ton gondola cars, which will be built in the company shops.

THE NORTHERN PACIFIC has ordered 1,000 steel underframes from the Western Car & Foundry Company to be used on new box cars.

THE ST. LOUIS & SAN FRANCISCO has ordered 8 all-steel mail cars from the American Car & Foundry Company, to be used on the Chicago & Eastern Illinois.

THE ERIE, mentioned in the *Railway Age Gazette* of June 30 as being in the market for 3,300 gondola cars and 25 passenger cars, has withdrawn from the market until after August 1.

IRON AND STEEL.

THE CANADIAN NORTHERN has bought 9,000 tons of structural steel.

THE IOWA CENTRAL has ordered 3,800 tons of rails from the Illinois Steel Company.

THE CHESAPEAKE & OHIO has ordered 8,500 tons of rails from the Illinois Steel Company.

THE BALTIMORE & OHIO has ordered 7,000 tons of rails from the Cambria Steel Company.

THE MINNEAPOLIS, ST. PAUL AND SAULT STE. MARIE has bought 3,500 tons of structural steel.

THE MEXICO & NORTHWESTERN has ordered 3,000 tons of car building material from the Illinois Steel Company.

THE LOUISVILLE & NASHVILLE has ordered 3,800 tons of structural material from the American Bridge Company, to be used on the Kentucky division between Covington and Paris.

GENERAL CONDITIONS IN STEEL.—The steel mills are again operating at about 68 per cent. of their capacity after the shut down last week due to the national holiday and the repair season. Orders are now coming in faster than they have for months. If the crops are good a sharp improvement is looked for in September and it is expected that more steel will be produced during the last six months of the year than during the first.

Supply Trade News.

The Bullard Machine Tool Company, Bridgeport, Conn., has made Harry Ellis, Jr., Mutual building, Richmond, Va., its direct representative in the territory surrounding Richmond and extending to the West Virginia line.

E. V. Dexter, acting manager of the lubricating department of the Waters Pierce Oil Company, St. Louis, Mo., has been made manager of the railway department of this company, with office in St. Louis. Mr. Dexter was purchasing agent of the Chicago & Alton from 1903 to 1908, and purchasing agent of the Mexican Central from 1908 to 1909.

The monthly report of the United States Steel Corporation shows that the unfilled tonnage on June 30 was 3,361,058 tons. This compares with unfilled orders of 3,113,187 tons on May 31; 3,218,704 tons on April 30; 3,447,301 tons on March 31; 3,400,543 tons on February 28; and 3,110,919 tons on January 31, 1911. The June unfilled tonnage statement of the Steel Corporation, which showed an increase of 247,871 tons over the preceding month, was more favorable than was expected. It had been generally believed that there would be but little change.

The General Electric Company, Schenectady, N. Y., has sold to the Union Switch & Signal Company, Swissvale, Pa., all of its patents relating to railway signaling, together with its stock and manufacturing equipment in this line of work. The Union company is now prepared to furnish the signaling apparatus heretofore supplied by the General company. While this sale does not include accessory apparatus, such as switchboards, rectifiers, motor generator sets, generators, etc., the Union company will now be able to offer General Electric accessory appliances to effectively supplement its lines of signal material when making complete signal installations.

The Roberts & Schaefer Company, Chicago, was awarded the contract last week by George J. Ray, chief engineer of the Delaware, Lackawanna & Western, with office at Hoboken, N. J., for the designing and building complete in operation, of a 600-ton reinforced concrete Holmen coaling station for installation at Binghamton, N. Y., the approximate contract price being $28,000. This company has also secured during the past week contracts for three 600-ton fireproof Holmen coaling stations for installation on the line of the Baltimore & Ohio, at Warwick, Ohio, LaPaz junction, Ind., and Rowlesburg, W. Va., the approximate contract price being $70,000. This company has also been awarded contracts for two 300-ton balanced bucket type coaling stations for installation on the new line of the Chicago & North Western, at Wyeville, Wis., and Friendship, these plants being located on the Milwaukee, Sparta & North Western. The approximate contract price is $25,000.

Judge Cross, of the United States Circuit Court, district of New Jersey, has rendered a decision denying the petition of the Byerley & Sons Company, Cleveland, Ohio, for an injunction to restrain the Standard Asphalt & Rubber Company, Chicago, from continuing alleged infringements of certain patents of the Byerley firm. The standard Asphalt & Rubber Company some time since brought suit in Chicago against the Byerley firm, alleging that it was infringing patents belonging to the Standard company. Byerley's suit against the latter was brought subsequently. In denying the Byerley firm's motion for an injunction, Judge Cross assessed it the costs of the action. He said that the Standard Asphalt & Rubber Company is operating under two patents, issued October 24, 1899, to George F. Culmer and George C. K. Culmer, one covering the process of making asphaltic fluxes and the other covering the making of the product. The Court said that the Byerley patent is essentially a distillation process, while three or four affidavits made by as many different experts were to the effect that there is absolutely no distillation in the Culmer process, and furthermore, that the Culmer process and product are essentially and radically different from those of the Byerley. Infringement, the Court said, must be shown by clear and convincing testimony, and without intending to forestall in any way the ultimate disposition of the case in the other court in which it is pending, it nevertheless emphatically held that the complaint had not sustained the burden of proof.

Railway Construction.

New Incorporations, Surveys, Etc.

Ardmore, Duncan & Lawton.—An officer writes that contracts are to be let within 30 days to build from Lawton, Okla., via Duncan, to Ardmore, about 100 miles. There will be four small steel bridges, and 10 short trestles. The line is being built to carry agricultural products, asphalt, oil, lumber and coal. A. N. Bullitt, Lawton, Okla., is chief engineer.

Arizona Eastern.—An officer writes that grading work is now under way by the Grant Brothers Construction Company, Los Angeles, Cal., from a connection with the Phoenix & Eatsern at a point 2.1 miles south of Mesa, Ariz., south through townships 1 and 2 South, range 5 East. The line, which is to be 11.9 miles long, will have maximum grades of 0.5 per cent. and maximum curvature of 3 deg. The improvements include putting up some station buildings. Epes Randolph, president, and L. H. Long, assistant chief engineer, both of Tucson. (June 23, p. 1674.)

Boston & Maine.—A survey for an electric railway to the summit of Mount Washington, N. H., is being made. The line, when completed, will wind about the mountain and will take the place of the old cog-wheel road which has been in operation for many years. The construction of a big hotel on the summit of the mountain is also projected.

Brownwood North & South.—See St. Louis & San Francisco.

Canadian Northern.—Announcement has been made that the Canadian Northern has secured financial backing for building the connecting lines to complete the through line from the Pacific to the Atlantic, also that the company would enter Montreal through a tunnel and will build a large central station in Montreal. (July 7, p. 64.)

The contract recently let for building a 164-mile section to Kanloops, B. C., it is said, has been given to P. Welch, Spokane, Wash., and to the Northern Construction Company, Winnipeg, Man. Sub-contracts have been let for the work as follows: Aylmer Brothers & Henning Vancouver, B. C., from Hope to Yale, 14 miles; Burns & Gordon, Spokane, Wash., Yale east 14 miles; George Chew, Spokane, 6.5 miles; George Cunningham & Co., Greenwood, B. C., 5.5 miles to Boston Bar; W. P. Tierney & Co., Vancouver, 11 miles; A. Griffin & James Welch, 19 miles to Lytton; Grant, Smith & Co., Seattle, Lytton to Spence's Bridge, 23 miles; Twohy Brothers, Portland, Ore., from Spence's Bridge for 41 miles; and to Grant, Smith & Co., a section of 30 miles to Kanloops. The work will be heavy, part of it being through solid rock along the steep and narrow canyons on the Fraser river. There will be about three miles of tunnels, two of which will have a total length of 2,000 ft. (July 7, p. 64.)

Chicago, Burlington & Quincy.—An officer writes that this company is constructing double track from Concord, Ill., to Beardstown, 12 miles, and from Beardstown to Astoria, 16 miles. All this work is parallel with present alinement and the grading is being done by the company's men.

Plans have been made, it is said, to build from Guernsey, Wyo., southwest to Salt Lake City.

See Union Pacific.

Chicago, Marseilles & Peoria.—Organized in Illinois with $5,000,000 capital to build from Chicago to Marseilles, Streator and Peoria. Charles M. Nichols, of New York City, is interested.

Chicago & Northwestern.—This company has begun operating an extension of the Norfolk Junction-Colome line to Wilmer, S. D., which is toward the Rosebud Indian Reservation, 11 miles from Colome.

Clear Lake.—An officer writes that bids will be asked for in August to build from Hopeland, Cal., northeast to Lakeport, about 15 miles. There will be a 200-ft. steel bridge and a 450-ft. tunnel on the line, also station buildings at Lakeport. Charles M. Hammond, president, Upper Lake, and C. R. Rankin, chief engineer. (June 2, p. 1,296.)

El Paso & Southwestern.—According to press reports, bids are wanted for grading a section of 44 miles between Fairbanks, Ariz., and Tucson. (June 30, p. 1714.)

Erie Railroad.—This company plans to complete the double

tracking of its entire line between New York and Chicago. This work, which will require the construction of about 465 miles of additional second track, will be apportioned over several years and only those sections which are imperatively needed will be constructed in the current fiscal year. The entire Cincinnati division east of Marion, Ohio, will be double tracked this coming year when improvements now authorized and under way are completed. There has just been completed on this division 9.7 miles of second track between Sherman and Sterling and 4.4 miles between Nankin and Ashland. Contracts have been let for the construction of 3 miles of second track between Tallmage and Hills, 5.4 miles between West Salem and Polk, 2.7 miles between Barberton and Sherman, 9.2 miles between Creston and West Salem and 6.5 miles between Milton and Summit. On the Meadville division 4.2 miles of second track was recently completed between Braceville and Windham, and work is now under way, construction an additional 5 miles between Ravenna and Point and 1.6 miles between Brady Falls and Dent. (May 19, p. 1,186.)

GRAND TRUNK PACIFIC.—An officer is quoted as saying that bids for building the gap of 410 miles between Tete Juane Cache, B. C., 50 miles west of Yellow Head Pass, and Aldermere, in the Bulkley Valley, will be called for at once. The main line now has been extended 200 miles west of Edmonton, Alb., to a point near the Athabasca river, and less than 35 miles from the summit of the Rockies at Yellow Head Pass. The rails will be laid across the summit in the autumn. In about two years the eastern and western sections will be connected. Then will follow the building of a branch line into Vancouver. The company also will make an early start on the construction of a dry dock at Prince Rupert, as well as other terminal improvements, to cost $3,000,000. An officer writes that bids are to be let August 15. The work will be heavy, involving the handling of about 125,000 cubic yards a mile. Maximum grades will be 0.4 per cent. There will be six steel bridges and two tunnels. Bids will not be asked for the steel work. The plans include putting up sub-stations and roundhouses. (April 14, p. 925.)

GREAT NORTHERN.—A contract has been given to Guthrie & Co., St. Paul, Minn., it is said, for track and bridge construction from Princeton, B. C., to Coalmont, 15 miles. The plans call for putting up six bridges.

A contract is said to have been given to Coughren & Waldson to grade 25 miles of line down San Poil valley from the terminus of the Spokane Falls & Northern at Republic, Wash. It is understood that the Great Northern will build this year from Republic south to Clark at the mouth of the San Poil, about 60 miles.

IDAHO NORTHERN RAILWAY.—A contract for a northern extension has been let, it is said, to the Utah Construction Company and the work will be started this month. The contract calls for building 58 miles of grade from Emmett, Idaho, to Smith's Ferry. The line will pass through Montour and Horseshoe Bend. No provision has been made for the contemplated extension to Payette lakes, 101 miles north of the present terminus at Emmett, although the survey is completed. It will take about a year to build the extension. E. O. and W. Wattis of Ogden will have charge of the building operations for the Utah Construction Company. Sub-contracts are to be let at once and several hundred men employed as soon as material arrives in Nampa.

INTERCOLONIAL.—This company is planning to build an extension from Halifax, N. S., to Guysboro county. Bids are to be asked for the work in the near future.

MISSOURI PACIFIC.—According to press reports, contracts have been let to List & Gifford, Kansas City, Mo., to build a new short line on the St. Louis, Iron Mountain & Southern between Bridge Junction, West Memphis, Ark., and Marianna, 45 miles.

NORTH FORK.—Work is to be begun soon on a line from recently opened coal fields near Hotchkiss, in Delta county, Colo., west to Delta, eight miles. Connection will be made at Delta with the Denver & Rio Grande. The directors are James B. Pearce, Thomas F. Dillon, Gilbert N. Prentiss, Will E. Pearce and L. E. Ross.

OREGON SHORT LINE.—The Utah Construction Company, who has the contract for building from Richfield, Idaho, to Camas Prairie, has sub-let 10 miles to Turber & Smith, Maynard, Idaho, and 25 miles to Eggleston & Matthew, Denver, Colo.

PACIFIC RAILWAY & NAVIGATION CO.—This company, which is building a 91-mile line from Hillsboro, Ore., west to Tillamook, expects to have the line finished by September. The J. W. Sweeney Construction Co. and Robert Wakefield, both of Portland, are the contractors. The work includes piercing 13 tunnels, the longest to be 1,437 ft. There will also be 36 bridges. The maximum grade will be 3 per cent. and the maximum curvature 15 deg. (December 23, p. 1,205.)

PITTSBURG & SHAWMUT.—This company, which is building from Knoxdale, Pa., to Freeport, 100 miles, it is said, is planning to build a branch from Nicholson's Run, seven miles south of Kittanning, Pa., to North Butler.

RED OAK & NORTHEASTERN.—See Wabash Railroad.

SANTA FE, PRESCOTT & PHOENIX.—This company has completed arrangements with former Senator Clark, of Montana, it is said, to build a line from a point near Cedar Glade, Ariz., to a point near Jerome, the site of the new United Verde Copper smelter, 40 miles. The line may eventually be continued south to Camp Verde, and thence to a connection near Dewey with the Bradshaw Mountain Railroad.

ST. LOUIS & SAN FRANCISCO.—Chairman B. F. Yoakum has confirmed a report that the St. Louis & San Francisco has taken over the Brownwood North & South now under construction, north from Brownwood, Texas. He has also closed negotiations to extend the 'Frisco line south from Brady, Texas, to a connection with the San Antonio & Aransas Pass, about 100 miles, which will give the former an entrance to San Antonio and establish a new north and south line through western Texas.

SOUTHERN PACIFIC.—According to press reports, construction work is to be started soon on a line from Hamilton City, Cal., south to Colusa, 37.5 miles. Plans are said to be under consideration for an extension south of Colusa to a point on the main line of the Southern Pacific. Two routes are under consideration, one from Colusa, via Sycamore, Grimes and College City to Harrington, and the other from Colusa directly south to Arbuckle. (March 24, p. 711.)

SPOKANE FALLS & NORTHERN.—See Great Northern.

TEMISKAMING & NORTHERN ONTARIO.—An officer writes that work is now under way on a branch building from Iroquois Falls junction, Ont., to Timmins, 33.5 miles. Track has been laid on 28.5 miles. The work is being carried out by day labor. The branch is being built to serve the Porcupine gold mining camp. Maximum grades will be 1 per cent. and maximum curvatures 6 deg. There will be an important trestle over Frederick House river.

TENNESSEE & KENTUCKY STATE LINE.—This company is asking for bids to build from Hazel, Tenn., west along the Tennessee-Kentucky state line, about 15 miles. The company was incorporated in Tennessee with $80,000 capital and is building the line to develop timber lands and the Ball and Sagger clay fields. The company will use 56 or 60-lb. relaying rails. Charles C. Tennis, chief engineer, Pittsburgh, Pa. J. N. Hill, J. W. Williams, W. T. Jackson, C. V. McCampbell and J. T. Turnbow, Hazen, Tenn., are interested.

UNION PACIFIC.—This company and the Chicago, Burlington & Quincy, it is said, are racing for an entrance into the newly developed dry farming section southeast of Cheyenne, Wyo., and both companies are preparing to run feeders into that territory. It is reported that the Union Pacific will extend its Crow Creek branch in northern Colorado from Briggsdale to the main line in Pine Bluffs, 60 miles. The Burlington will build a connection from the line in northern Colorado at Greeley, to the line near Hudson, practically paralleling the Union Pacific's new line.

WABASH RAILROAD.—Construction work has begun, it is said, on the Red Oak & Northeastern, which is to form a connecting link and a feeder for the Wabash. The first part of the line to be built will be from Imogene, Iowa, where it touches the Wabash system, to Red Oak, 13 miles. Later the line will be extended northeastward from Red Oak to a terminus not yet decided upon. The line will be completed to Red Oak within 90 days.

RAILWAY STRUCTURES.

Aberdeen, So. Dak.—The Chicago, Milwaukee & St. Paul will build a two story brick passenger station 50 ft. x 300 ft., a brick freight house 28 ft. x 400 ft., and an engine terminal to replace the structures which were recently destroyed by fire. Plans for the work have been completed and construction is now under way. It is estimated that the entire group of buildings will cost about $200,000.

Elizabethport, N. J.—An officer writes that work is now under way by the John W. Ferguson Company and the Phoenix Iron Company on additions to the freight car repair shops at Elizabethport. There will be a building 179 ft. x 600 ft. for freight car repairs, a lumber shed 80 ft. x 200 ft., planing mill 80 ft. x 300 ft., paint shop 50 ft. x 200 ft.; also a dry kiln, paint storage building and extension to the power house. All the buildings will have steel frames, with brick and concrete walls.

Everett, Wash.—The Great Northern will ask for bids at once, it is said, for the construction of terminal buildings at Everett. The estimated cost is $150,000. (March 10, p. 483.)

Galveston, Tex.—The Gulf, Colorado & Santa Fe is receiving bids for building the following: A 16-stall, brick roundhouse equipped with an 85-ft. turntable, to cost about $46,000; a brick storehouse, $17,000; power house, $6,200; sand house, $6,000, and machine and blacksmith shop, $9,500. It is expected that some water tanks also will be erected. Work will be started about the middle of July.

Hillyard, Wash.—The Great Northern has let the contract for building a machine shop 200 ft. x 360 ft., to cost about $100,000.

Homer, La.—It is understood that the Louisiana & North Western is planning to rebuild the shops at Homer, which were destroyed by fire.

Marysville, Cal.—The Northern Electric Railway, it is said, will build new shops at Marysville.

Minkler, Cal.—The Atchison, Topeka & Santa Fe Coast Lines have given a contract to C. A. Fellows, Los Angeles, for putting up a concrete station to cost $7,500, at Minkler; also a contract for putting up a concrete station at Piedra, near Fresno, to cost $3,500.

Montclair, N. J.—The Montclair council has approved the plans of the Delaware, Lackawanna & Western for improvements to be made in Montclair. The plans call for a new passenger station and the elimination of three dangerous grade crossings. It is understood that the railway company will double-track the line from Bloomfield to Montclair.

Palestine, Tex.—The woodwork and upholstering shops of the International & Great Northern, it is reported, were burned on July 3, with an estimated loss of $50,000.

Pasco, Wash.—The Northern Pacific will build an engine terminal to include a thirty-six stall roundhouse, machine and boiler shop, coal dock and repair shop to cost about $350,000.

Piedra, Cal.—See Minkler, Cal.

Pittsburgh, Pa.—The Pittsburgh & Lake Erie has let contracts for building a 200-ft. extension to the train sheds at the South Side terminal in Pittsburgh, and work is to be started at once. The American Bridge Company will furnish the structural work, and the Lucius Engineering Company will do the erecting.

Princeton, B. C.—See Great Northern, under Railway Construction.

St. Louis, Mo.—The Columbia Transfer Company of St. Louis will build a freight station to cost about $20,000.

Springville, Cal.—The Porterville & Northeastern has let a contract for the construction of a station at Springville, to cost $6,000.

Temple, Tex.—The Missouri, Kansas & Texas, reported in the *Railway Age Gazette* of May 19, as expecting to build a passenger station, has completed plans for a building 40 ft. by 184 ft., to cost about $40,000. It will be of pressed brick and terra cotta construction.

Railway Financial News.

Boston & Maine.—See Worcester, Nashua & Rochester.

Buffalo & Susquehanna.—William Saloman & Co., New York, have bought from the company and resold $500,000 5 per cent. receivers' certificates of July 1, 1911-July 1, 1912. The certificates were issued to provide funds to pay off $511,000 receivers' certificates due July 1, 1911. The court's order authorizing these certificates provides that the total issue having an equal lien shall not exceed $750,000.

Chicago & Alton.—At the executive committee meeting on July 11, no action was taken on the semi-annual dividend on the prior lien stock. This is considered equivalent to passing the dividend, which is a 4 per cent. annual cumulative dividend. The dividend on the preferred was recently passed.

Erie.—Drexel & Co., Philadelphia, Pa., have bought $6,000,000 equipment trust 4½ per cent. notes, maturing in series semi-annually during ten years.

Kansas City, Ft. Scott & Memphis.—William Salomon & Co., New York, are offering the unsold portion of the $2,688,000 refunding mortgage 4 per cent. bonds which were sold by the company to retire $2,055,300 Kansas City, Ft. Scott & Gulf 5 per cent. bonds which matured June 1, and to redeem equipment trust bonds.

Maine Central.—Stockholders have voted to increase the capital stock by $5,004,300, making the total authorized stock $10,000,000. Stockholders are offered the privilege of subscribing before August 7, 1911, at par, for one share of new stock for each share of old stock held.

The *Wall Street Journal* says that it is proposed to reduce the dividend from 8 per cent. to 6 per cent., to be paid on both old and new stock commencing with the present fiscal year.

Of the $25,000,000 Maine Central 50-year 4 per cent. refunding mortgage bonds recently authorized by the stockholders, $12,000,000 are to be sold and the money, together with the money received from the sale of the new stock, will be used to pay off consolidated mortgage bonds and notes amounting to $15,484,000, which mature April 1, 1912.

Maine Central.—John F. Hill, of Augusta, Me., has been elected a director, succeeding F. A. Wilson, deceased.

National Railways of Mexico.—A press despatch from Mexico City says that Pablo Macedo and Jose Signoret have resigned from the board of directors, and Leandro Fernandez and J. B. Estanol have been elected to suceed them.

New Orleans, Fort Jackson & Grand Isle.—A mortgage has been filed securing $5,000,000 bonds. It is said that negotiations have been undertaken for the sale of these bonds.

New York Central & Hudson River.—The New York Public Service Commission, Second district, has authorized the company to guarantee principal and interest $2,500,000 4½ per cent. bonds of 1911-1932 of the Clearfield Bituminous Coal Corporation. The entire stock of the Coal Corporation is owned by the New York Central, having been bought for the purpose of securing a permanent supply of coal.

St. Louis & San Francisco.—The $4,000,000 7-year 4½ per cent. notes of 1905 have been called for redemption at par on August 1, 1911. The payment for these notes is to be made from the proceeds of the $7,000,000 general mortgage bonds which were sold last April through Speyer & Co. to Paris bankers.

Virginia Anthracite Coal & Railway.—The sale of this road was set for June 29, but no higher bid was made than $125,000 and the receivers declined to sell the road at that price and adjourned the sale until August 29.

Worcester, Nashua & Rochester.—A circular which accompanied the semi-annual dividend of $3 per share paid July 1, says: "The lease of this road to the Boston & Maine is to be canceled and no further dividends will be paid. The Boston & Maine assumes all the liabilities of the company and will pay $150 per share for the outstanding capital stock.